

1 UNITED STATES DISTRICT COURT
2 EASTERN DISTRICT OF MICHIGAN
3 SOUTHERN DIVISION

4)
5) Civil Action No.
6) 5:16-cv-10444-JEL-MKM
7 In Re: FLINT WATER CASES) (consolidated)
8)
9) Hon. Judith E. Levy
10) Mag. Mona K. Majzoub
11)
12)
13)
14 Elnora Carthan, et al.,)
15)
16 Plaintiffs,)
17)
18 vs.) Civil Action No.
19) 5:16-cv-10444-JEL-MKM
20 Governor Rick Snyder,)
21 et al.,)
22)
23 Defendants.)
24)

HIGHLY CONFIDENTIAL
REMOTE VIDEOTAPED DEPOSITION OF
ROBERT MICHAELS, PH.D.
VOLUME I

Thursday, November 12, 2020
at 9:04 a.m.

Taken at: Residence of Robert Michaels, Ph.D.
Schenectady, New York

REPORTED BY: SARA S. CLARK, RMR/CRR
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A P P E A R A N C E S

VIA ZOOM

- - -

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A P P E A R A N C E S

VIA ZOOM

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- - -

Highly Confidential Robert Michaels, Ph.D.

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P R O C E E D I N G S

VIDEOGRAPHER: We are now on the record.

My name is Robert Martignetti. I'm a
videographer for Golkow Litigation Services.

Today's date is November 12th, 2020, and
the time is 9:04 a.m.

This remote video deposition is being
held In Re: Flint Water Cases.

The deponent is Robert Michaels, Ph.D.

All parties to this deposition are
appearing remotely and have agreed to the witness
being sworn in remotely. Due to the nature of
remote reporting, please pause briefly before
speaking to ensure all parties are heard
completely.

Counsel will be noted on the
stenographic record.

The court reporter is Sara Clark, and
will now swear in the witness.

1

- - -

2

ROBERT MICHAELS, PH.D.

3

being by me first duly sworn, as hereinafter

4

certified, testifies and says as follows:

5

EXAMINATION

6

BY MR. ROGERS:

7

Q. Okay. Good morning, Dr. Michaels. I

8

introduced myself to us while we were off the

9

record. My name is David Rogers. I represent the

10

VNA defendants.

11

So good morning to you, sir.

12

A. Good morning.

13

Q. And as we also discussed, any time that

14

you need to take a break, you just let us know.

15

The only thing I would ask is that you just answer

16

the question that's pending, and then we'll decide

17

and go ahead and take a break.

18

Okay?

19

A. Very good.

20

Q. All right. I want to start by asking

21

you when you were retained in the case.

22

Do you have a memory of when it was that

23

you were retained to be a consulting expert in the

24

case?

1 A. No, I don't. No, I'd rather not guess.
2 I'm sure I have records of that, but I don't
3 remember.

4 Q. There was a --

5 MR. STERN: Dave Rogers?

6 MR. ROGERS: Hi, Corey.

7 MR. STERN: Hey. This is Corey.

8 I just wanted to note for the record my
9 appearance by phone for now. I'll be jumping on
10 the computer shortly at some point. But the
11 404-number is mine.

12 MR. ROGERS: Yep. And I sent you an
13 e-mail earlier today, Corey, about a matter I
14 mentioned to Patrick. When we have a break,
15 there's another issue, if we have a chance, I
16 would like to discuss with you.

17 MR. STERN: Sure.

18 MR. ROGERS: So we'll do that during a
19 break or lunchtime, I guess.

20 MR. STERN: Sure.

21 MR. ROGERS: We just got started. You
22 didn't miss anything.

23 BY MR. ROGERS:

24 Q. All right. Do you go by doctor or

1 mister? I'll probably refer to you as
2 Dr. Michaels. Is that fine with you?

3 A. Doctor is fine.

4 Q. Okay. We had asked that you provide to
5 us invoices, and what was produced was an e-mail
6 to Mr. Stern, I believe, from July of 2020 with an
7 amount of, I think, \$12,000 for an invoice.

8 Do you have any other documents or
9 records that would show the amount of time that
10 you worked on the case, when you did the work, and
11 what you did when you were working for however --
12 whatever period of time on a daily or weekly basis
13 or anything?

14 A. That invoice is --

15 MR. LANCIOTTI: Objection; form.

16 Go ahead, Doctor.

17 A. That invoice, we have a lump sum
18 agreement, so I was not required to write down
19 specific hours.

20 Q. Yeah. But did you? I mean, do you have
21 any other records in your possession that you
22 maintain that would describe the work that you did
23 on the case and when you did it, whether it's an
24 invoice or not?

1 A. I'm sure that there are pieces of paper
2 around that I could scrounge up that might remind
3 me of when I did things, but I don't have a
4 specific document that -- that I can provide to
5 you right now.

6 Q. When I asked about when you were
7 retained in the case, you said you didn't want to
8 guess and you didn't know, but that you might be
9 able to find out, I think, paraphrasing what you
10 said.

11 How would you find out the date on which
12 you were retained?

13 A. I have a calendar --

14 MR. STERN: Object to form.

15 Object to form.

16 Dave, I'm not sure if you're referring
17 to the cases that he began working on for
18 Levy Konigsberg, my firm, or when he was retained
19 initially for the other bellwether cases which
20 came before he was retained by my firm.

21 MR. ROGERS: Yeah. I had asked earlier
22 about when he was retained, quote, in the case.

23 BY MR. ROGERS:

24 Q. So I guess I'm referring to,

1 Dr. Michaels, the first time at which you were
2 retained as an expert consultant in any capacity
3 to work on the Flint water cases.

4 A. You know, I'm pretty good at keeping
5 records for -- I have a calendar that is on iCal
6 and I could look that up. And I suspect that if I
7 went into my computer, I would find a date, you
8 know, that -- probably an e-mail or something like
9 that. But I don't recall the actual -- I don't
10 recall.

11 Q. Would you be willing to do that? It
12 is -- excuse me -- there's something in my throat
13 here. Excuse me.

14 Later on today or before tomorrow, would
15 it be possible for you to look into your records
16 and determine the first date on which you were
17 retained to do -- as a consultant to do any work
18 on the case?

19 A. Yes, I could do that.

20 Q. All right. I would appreciate it.
21 Thank you. I'll check in with you about that
22 tomorrow.

23 What did you understand your assignment
24 to be when you were retained?

1 A. To address the issues for, at first four
2 bellwether plaintiffs, and later, 10 bellwether
3 plaintiffs, for a total of 14.

4 And -- excuse me. That's more of a
5 morning problem for me.

6 Q. We both -- we must have the -- we both
7 need some cough drops or something today, I think.

8 A. Yeah.

9 I also recall that part of the rationale
10 for the rest of my report comes from the fact that
11 it is also a document for use by other plaintiffs
12 that we -- who might be recruited into the case.
13 And so it has that as well as a purpose.

14 Q. I see.

15 So the way that you answered the
16 question leads me to ask this question, which is:
17 Was there a sequence of when you were retained in
18 the assignments that you were given, namely, that
19 at first, you were retained by the Napoli law firm
20 to investigate issues surrounding toxicology for
21 the four bellwether plaintiffs, and then at some
22 point after that, you were asked to also address
23 the 10 bellwether plaintiffs that Mr. Stern
24 represented?

1 A. Yes. That's exactly what happened.

2 Q. Okay. Beyond what you just said, that
3 is, I think, paraphrasing toxicology, you were
4 retained to -- your assignment was to investigate
5 and do an analysis regarding toxicology issues for
6 the bellwether plaintiffs -- and we'll just call
7 them that for now.

8 What else were you asked to do, if
9 anything?

10 A. Well, I think as I said, I created a
11 report that had sufficient breadth to be useful
12 for the plaintiffs that might come into the place
13 later on who were not considered bellwether
14 plaintiffs at the time when I was retained.

15 Q. Okay. So you know at this point in
16 time, there's been a selection process in the four
17 bellwether plaintiffs who have been chosen to be
18 the first trial plaintiffs, so to speak, in our
19 trial that we have scheduled for June. I'll just
20 refer to them by their last names -- I don't mean
21 any disrespect but just to simplify things --
22 S[REDACTED], T[REDACTED] v P[REDACTED], and W[REDACTED].

23 Are you familiar with that?

24 A. Yes, of course.

1 Q. Okay. So we had an agreement among
2 counsel that we're going to basically focus on,
3 you know, those four plaintiffs, the four
4 bellwethers that are the first trial candidates.
5 And while your report addresses, you know, the
6 14 that were in the group at the time, I'm going
7 to focus on the four. So when I say going
8 forward, "the bellwethers," that's who I'm
9 referring to, these four. Okay?

10 A. Okay.

11 Q. What -- can you describe for me in
12 chronological order as best you remember the work
13 that you did to carry out the assignment in the
14 case that you just described?

15 A. Well, I was provided with a lot of
16 information by the attorneys, and I looked at that
17 information. The information included the
18 depositions of the bellwether parents, and they
19 included some attorney records of information that
20 had been summarized for each bellwether
21 plaintiffs. And so that was another source of
22 information.

23 I also saw some physician summary of
24 medical cases. And as the -- that was very

1 useful.

2 And I believe that, to be precise, the
3 more definitive answer is in the literature that
4 I've explicitly cited in my report -- in both
5 reports, but, of course, one of the reports is not
6 relevant today.

7 Q. Okay. So you described a couple of
8 things. Reviewing records.

9 In addition to reviewing the records,
10 what did you do?

11 A. Well, I looked at a lot of literature as
12 well to form -- to create the report that you see.
13 I'm not sure how to answer this except that I did
14 an investigation, basically literature
15 investigation involving the literature -- the
16 general literature, the scientific literature, as
17 well as the case-related literature that was
18 provided to me.

19 Q. Okay. Then you wrote the report based
20 on that work that you did?

21 A. Yes.

22 Q. Have you done anything else -- up until
23 the point in time in which you wrote your report,
24 had you done anything else?

1 A. You mean relative to writing the report,
2 something that I didn't mention to you?

3 Q. No, my question is broader than that.
4 I'm asking about the work that you did to carry
5 out the assignment that was given to you in the
6 case.

7 So thus far, you've described to me you
8 reviewed lawyer summaries of information,
9 physicians' summaries of information, other
10 records related to the plaintiffs, including the
11 parents' depositions, you did a literature review,
12 and then you wrote your report.

13 So up until the point in time at which
14 you wrote your report, I'm just asking if you did
15 anything else other than what you've just
16 described to me?

17 A. Nothing that comes to mind right now. I
18 mean, I -- as I said already, I looked at very
19 specific literature, and I'm referring to
20 case-related literature right now --
21 plaintiffs-related literature right now, and those
22 are all cited in great detail.

23 But as a general statement, I'm just
24 saying that that's what I did. I've not mentioned

1 every piece of literature that I -- that I looked
2 at. And I did receive literature that I did not
3 look at as well.

4 Q. Okay. In terms of the lawyers'
5 summaries, we had asked that the file materials
6 that you had be produced to us. I don't believe I
7 received any lawyers' summaries.

8 Tell me about those. What are those?

9 A. This is --

10 MR. STERN: Object to form.

11 Object to form.

12 You can answer.

13 MR. LANCIOTTI: Doctor, if you hear
14 either Corey or myself objecting, you can answer
15 the question unless we specifically instruct you
16 not to answer it. So if you hear us say
17 "objection," you know, you can go ahead and answer
18 the question after our objection.

19 THE WITNESS: Okay.

20 MR. STERN: I just want to be very
21 careful not to get into work product issues.

22 THE WITNESS: I'm seeing a green
23 telephone on the screen and I'm not sure that
24 you -- that I have the floor at this point. Can

1 you hear me?

2 MR. ROGERS: Yeah, we do.

3 MR. STERN: Yeah. You always have the
4 floor once the objections are lodged.

5 THE WITNESS: Okay.

6 A. There were some forms that I gather were
7 standard questionnaires that the lawyers
8 administered to each of the plaintiffs, or maybe
9 they filled them out themselves based on
10 interviews with the plaintiffs. In any case, I
11 was provided with those, and I thought that I had
12 provided them to you, but I may not have, if
13 you're telling me I didn't.

14 THE WITNESS: Or, Patrick, did you
15 receive them and discover that those were not
16 appropriate?

17 Q. Well, let me just clarify. I think
18 maybe you're referring to the fact sheets --

19 A. Yes.

20 Q. -- with the information? That's what
21 you're referring to?

22 A. Yeah.

23 Q. Okay. So I know what those are. Thank
24 you.

1 A. Okay.

2 Q. Other than the fact sheets, you know,
3 containing information about certain subject
4 matters for each individual plaintiff -- that's
5 why I asked about lawyers' summaries.

6 Did you receive any written memoranda or
7 summaries of information that you relied upon for
8 purposes of writing your report and expressing
9 opinions in the case besides the fact sheets and
10 these other things that you described earlier?

11 A. I don't believe I did. So I will amend
12 my answer if I come across something like that,
13 but I don't think so.

14 Q. Okay. And then with respect to
15 physicians' summaries, I think you said, are
16 there -- did you review any summaries written by
17 physicians other than actual medical records? I
18 don't know what you're referring to when you
19 describe them as "physicians' summaries." What do
20 you mean?

21 A. Again, I believe I provided those to you
22 in the drop of information that I had received. I
23 was not very selective. I just sent them off.
24 And I believe they're in there. I don't -- and

1 actually, you invited me to have a copy of my
2 report. I can be more precise.

3 Q. That's okay. I think I understand.

4 So you are -- when you use the words
5 "physicians' summaries," you're referring to
6 medical records from various physicians for each
7 of the individual plaintiffs, right?

8 A. Yes. And I will tell you that my
9 understanding -- you know, I looked at some
10 medical records. And if you've ever tried to read
11 a physician's handwriting or if you've ever tried
12 to look at all of the painful detail, those are
13 extensive documents. And sometimes I did delve
14 into those documents. But there was a physician
15 who was engaged to summarize them, and I looked at
16 his summaries of those medical records and relied
17 on the summaries.

18 And so if you are using the word
19 "medical records" to mean original medical
20 records, these are different. If you're using the
21 word "medical records" to refer to records
22 prepared by a physician, these are medical
23 records. That's your semantic choice.

24 Q. Gotcha. Thank you very much for that.

1 I appreciate it.

2 The report that you wrote was dated --
3 let me just make sure I have the date here.
4 Actually, I don't see a date on it.

5 It was at the end of July 2020 sometime,
6 right? I'll tell you what, whenever the date of
7 the report is -- leave that aside for a minute --
8 can you tell me what work you've done on the case
9 since you completed and finalized your report?

10 A. I believe I've been told not to talk
11 about that.

12 Q. Well, I'm going to need you to answer
13 the question unless Patrick or Corey tell you not
14 to. I'm just asking what work have you done on
15 the case between the end of your report and the --
16 today, as we sit here, concerning the Flint water
17 litigation and the bellwether plaintiffs?

18 MR. STERN: Dave, this is Corey. He can
19 answer the question. I just want to interject.

20 In our preparation -- our brief
21 preparation with the doctor about the deposition,
22 what we told him that he should not discuss is our
23 communications, is our --

24 MR. ROGERS: Yeah.

1 MR. STERN: -- communications. So he
2 can tell you anything he wants.

3 And, Doc, it's okay to answer the
4 question. I just -- you know, if you're going to
5 tell him that we met yesterday via Zoom for an
6 hour, it's okay to say that, but it's not okay to
7 say, you know, "Corey told me that I should tell
8 Dave Rogers that he's a fabulous human being."
9 Like, nothing about our conversation is able to be
10 discussed.

11 A. Well, we had a phase of the selection of
12 plaintiffs, and my opinion was requested on how to
13 select plaintiffs, and so I did some work on that.

14 Q. Okay. Understood. And, again, yeah,
15 I'm not asking you to describe the substance of
16 communications between you and the lawyers, but
17 just the subject matters of the work that you did.

18 Okay. So that's one thing that you did.
19 You were asked to help or, you know, provide some
20 information as part of the selection process.

21 Anything else between -- any other work
22 that you did on the case between the time that you
23 finished your report and today, sir?

24 A. Well, I reviewed my work. I actually

1 read through my report. I don't know if you --
2 again, it's a semantic issue. Does that count as
3 work? I was preparing for my deposition which I
4 knew was coming, so I looked at my report. And I
5 don't think I was asked to do anything else.

6 Q. I'm just trying to know what you did.
7 So I'm -- does that complete your description of
8 any work that you've done on the case since you
9 finished your report and today?

10 A. I believe so.

11 Q. All right. Do you have an estimate of
12 how much time you spent working on the case from
13 when you were first retained through the time that
14 you completed your written report, sir?

15 A. What I have is actually a record of the
16 time that I spent preparing for my deposition.
17 That includes phone calls that have been made;
18 that includes reading my report; that includes the
19 work I described on the selection of plaintiffs;
20 it includes the Zoom conversation that we had to
21 prepare me. That is incorporated in time sheets,
22 but that all post-dated the report.

23 Q. Yeah. So I believe you might have --
24 thank you for that. I think you might have

1 misheard me or misunderstood. I was asking for an
2 estimate, if you have one, of how much time you
3 spent from the date that you were first retained
4 to work on the case through the time at which you
5 completed your written report.

6 How much time did you spend during that
7 period of time?

8 A. I don't know. I don't know.

9 Q. And since the --

10 A. A lot.

11 Q. Do you have --

12 A. It's a lot.

13 Q. -- do you have an estimate for me?

14 A. No, I do not.

15 Q. Since you completed your report, you're
16 saying that you've kept time sheets.

17 A. Correct, yes.

18 Q. And do those time sheets basically
19 itemize the work that you were doing and how much
20 time you spent doing it?

21 A. Yes.

22 Q. All right. And what is the total amount
23 of time that you've spent as recorded on those
24 time sheets?

1 A. Well, I haven't added it up, but...

2 Q. I'll tell you what we can do, Doctor.

3 If during a break at some point --

4 A. I can add it up. I'm sorry.

5 Q. No, maybe -- I'm going to ask you to
6 provide them to Patrick and Corey, copies of them,
7 if they don't already have them, and then provide
8 them to me so I can just take a look at them and
9 maybe mark them as an exhibit and that way we'll
10 have the time.

11 MR. ROGERS: Is that doable, Patrick or
12 Corey and Dr. Michaels?

13 MR. LANCIOTTI: Yeah, that's fine.
14 Either today, or we can do it tomorrow.

15 MR. ROGERS: Yeah. If you get it to me
16 at the end of today, we'll cover it tomorrow
17 morning. Okay. Thank you.

18 MR. LANCIOTTI: Yeah.

19 BY MR. ROGERS:

20 Q. So, Doctor, just hold on to those time
21 sheets and we'll deal with that at another time,
22 or probably tomorrow.

23 Let's see. Why don't we mark some
24 exhibits just to get some paperwork out of the

1 way -- no, no. Before we do that, let me ask you
2 this. Sorry. I've got a massive outline for you,
3 Doctor, and I'm trying to figure out what's the
4 best and most efficient way to go about this.

5 Your report, as you know, is quite long,
6 120-plus pages or thereabouts, and then post -- or
7 appendices with lists of references and things
8 like that. And I didn't see anything in the
9 written report identified as opinions or summary
10 of opinions or anything like that.

11 Can you give me a basic description of
12 what your opinions are with respect to the four
13 bellwethers that we have at issue in the case
14 right now?

15 A. I believe I've given you that --

16 MR. LANCIOTTI: Objection; form.

17 A. I believe I've given you that, and the
18 report is -- I'll have to look at this in more
19 detail, but the report is divided up into
20 traditional scientific sections. There is a
21 summary at the beginning, and those summarize
22 everything. There is a "Conclusions" section and
23 a "Discussion" section, and those give my
24 opinions.

1 So if you -- if you use that as a guide,
2 those are my opinions.

3 Q. All right. Let's take a look at the
4 "Summary" section, then. It looks like that
5 appears on Pages 2 -- well, it's all contained on
6 Page 2 of your report.

7 Are -- the third and fourth paragraphs
8 on Page 2, are those the opinions that you hold
9 that you intend to testify about at the trial of
10 this case?

11 MR. LANCIOTTI: Dave, I think if you're
12 going to be asking him questions about the report,
13 it might make sense to enter it as an exhibit so
14 we can all see it on the Zoom.

15 MR. ROGERS: Yeah, let's do that. Let's
16 mark a few documents just to get some paperwork
17 out of the way and then, Doctor, we'll come back
18 to it.

19 All I'm going to do is put up on the
20 screen these exhibits and then we'll mark them and
21 get back to those questions.

22 MR. LANCIOTTI: Thank you.

23 MR. ROGERS: Yep.

24 - - -

1 (Michaels Exhibit 1 marked.)

2 - - -

3 BY MR. ROGERS:

4 Q. Dr. Michaels, I'm putting up on the
5 screen what we'll mark as Exhibit 1, the notice of
6 taking deposition.

7 Do you see that?

8 A. I do.

9 Q. And did you receive that notice of
10 deposition and the document requests that
11 accompany it that are listed here as Schedule A?

12 A. Yes.

13 Q. And did you undertake to search through
14 your records and your files and produce the
15 documents that were requested and to provide them
16 to Mr. Stern or Mr. Lanciotti so that they could
17 provide them to me?

18 A. I did.

19 Q. All right. So at the end of the
20 deposition, I'm going to come back to this and
21 we'll just go through it in more detail and make
22 sure. But that's Exhibit 1, the notice of
23 deposition.

24 - - -

1 (Michaels Exhibit 2 marked.)

2 - - -

3 BY MR. ROGERS:

4 Q. Exhibit 2 is your CV. And I will get to
5 some questions about that. This was a CV that I
6 believe was provided with your report, and I've
7 got some highlights on it.

8 But do you basically recognize that as
9 your CV in the case?

10 A. I do.

11 Q. And did you provide a CV that was up to
12 date as of the, you know, time that you wrote your
13 report?

14 A. I believe I must have updated that CV.
15 You say it was included in the report?

16 Q. I think -- not included in the report
17 maybe but was provided with the report or at some
18 time thereafter.

19 So is that basically current as of, you
20 know, summertime 2020?

21 A. When somebody asks me for a CV, I
22 normally would update it at the time that I
23 provide it. But I also am aware that I provided a
24 CV as part of the process of getting retained.

1 Are there two different versions, one
2 updated, I don't recall.

3 Q. All right. When we get to it and I ask
4 you specific questions, we'll maybe be able to
5 figure that out.

6 _ _ _

7 (Michaels Exhibit 3 marked.)

8 - - -

9 BY MR. ROGERS:

10 Q. But in terms of housekeeping, let's take
11 a look at this Exhibit 3 that I marked, which is
12 that e-mail dated July 1st to Mr. Stern that I
13 described earlier. And you say here that you're
14 providing this invoice for the work that you did,
15 6,000 -- you can see it on the screen -- 6,000 for
16 initiation -- or upon initiation of work, 6,000
17 upon report submittal, \$12,000. Right?

18 A. Correct.

19 Q. So that leads me to believe that you may
20 have been retained, at least for the 14 -- well,
21 for the 14 bellwethers, sometime around July 1st,
22 2020 because of the way that you wrote this.

23 Does that refresh your memory of when
24 you were retained?

1 A. Well, it was considerably before
2 July 1st because we -- I was retained to do a
3 report on four bellwether plaintiffs. This
4 Number 14 that's in here includes that, that
5 initial four. So I probably was retained a couple
6 of months before that July 1st e-mail.

7 Q. Okay.

8 A. Maybe two, three months before that. I
9 don't really remember.

10 Q. Well, the reason I ask is because it
11 says here invoice, due, 6,000 upon initiation of
12 work. What does that mean?

13 A. Well, it means probably that as a
14 businessperson, I am somewhat trusting, and I did
15 start work before receiving that.

16 Q. Okay. So your best memory is that you
17 would have been retained to -- as an expert to do
18 work on the case several months before July 1st,
19 and as of July 1st, that's when you submitted your
20 first invoice; is that fair?

21 A. No, no, that is not correct. I believe
22 that the sequence was that there was an initial
23 report that I did involving four bellwether
24 plaintiffs and a subsequent report that I did

1 involving the additional 10 bellwether plaintiffs.

2 The initial report had been submitted
3 earlier, and there was an invoice for that as
4 well. I might not have provided that invoice. I
5 don't remember if I did, because it did not
6 involve these four bellwether plaintiffs.

7 Q. I see.

8 A. The additional 10 bellwether plaintiffs.
9 But -- but there were two different invoices.

10 Q. Okay. That's helpful information.
11 Thank you. I'll talk to Corey and Patrick about
12 that later.

13 So as I understand, this invoice relates
14 to the work that you did involving the Corey Stern
15 10 bellwether plaintiffs after you had already
16 done some work for the four bellwether plaintiffs
17 who Mr. Lanciotti represented; is that the way it
18 worked?

19 A. Exactly, yes, that's right.

20 Q. Okay. So the \$12,000 here that you
21 invoiced for the work that you did, that would be
22 for the 10 bellwether plaintiffs in Mr. Stern's
23 group of clients, right?

24 A. Basically yes, but I will have to amend

1 that and say that the reports -- the two groups of
2 bellwether plaintiffs substantially overlap. And
3 so in some sense, this is an incremental amount
4 because I was able to make use of information in
5 the prior report that was generic, in other words,
6 information that did not relate only to each of
7 the four bellwether plaintiffs that were addressed
8 by that report.

9 So -- well, that's the way I wanted to
10 amend what you've suggested.

11 Q. Yeah, that's helpful. Thank you. And,
12 of course, we were provided with the report. You
13 divided the reports up into the four bellwethers
14 from the Napoli group and then the four from
15 Mr. Stern's group.

16 So do you remember what amount you
17 invoiced for the four in the original invoice for
18 the work that you did?

19 A. I believe that was \$15,000.

20 Q. Okay.

21 MR. ROGERS: So, Patrick, can you get
22 that and produce that? Because I think, as he
23 just said, you know, some of that would have been
24 devoted to work that's generic and was carried

1 over into the second report.

2 MR. LANCIOTTI: Yes, that's fine. And
3 that's the reason why it wasn't produced in the
4 first place, because I had thought it was just for
5 our four bellwether plaintiffs so it wouldn't have
6 been pertinent to our conversation to the four.
7 But, yeah, we'll get that to you and -- probably
8 at the end of today. That's fine.

9 MR. ROGERS: Yeah, great.

10 BY MR. ROGERS:

11 Q. And that might also -- Dr. Michaels, if
12 you looked at that invoice, potentially that could
13 assist in trying to nail down the date on when you
14 were first retained, right?

15 A. Well, I'm sure it will help. Again, as
16 a businessperson, I'm not animated by money as
17 much as other people are, and there was a
18 significant lag between the time I first submitted
19 the report and later submitted the invoice. So,
20 yes, it will help certainly, but I have more exact
21 information, I'm sure that I can find, pretty
22 exact information about when I was retained.

23 Q. Okay. Thanks. And we've talked about
24 that.

1

- - -

2

(Michaels Exhibit 4 marked.)

3

- - -

4

BY MR. ROGERS:

5

Q. The next exhibit I'm going to show you

6

is the actual report; it's Exhibit 4. It says

7

here there's 143 pages total.

8

But, basically, do you recognize this is

9

the report for the -- that includes the four

10

bellwethers that we have here which is dated

11

August 6, 2020?

12

A. This includes the 10 additional

13

bellwether plaintiffs. It does not include the

14

four bellwether plaintiffs that were done in a

15

separate initial report.

16

Q. Yeah, I'm sorry. I recognize that. I

17

meant the four bellwether plaintiffs that are the

18

trial plaintiffs that we're concerned about,

19

S[PPI], T[PPI], V[PPI], and W[PPI].

20

They're in this report, right?

21

A. They're in this report, correct.

22

Q. Okay. So now to get to the point that

23

we were on before, which is your opinions, I was

24

asking you to describe what your opinions were,

1 and I focused you on Page 2, which is the summary.
2 And if you see, if we go to Page 3, the summary
3 portion ends and it moves into an introduction.

4 Is this summary that's on Page 2 of your
5 report a basic summary of the opinions that you
6 hold in the case?

7 MR. LANCIOTTI: Objection; form.

8 A. The summary is a brief explication of
9 the scope of the report, the activities that I
10 conducted, the findings that I made, and the
11 conclusions that I drew. You can count them as
12 opinions if you like. They certainly are -- I
13 guess I refer to the conclusions mostly as
14 opinions and the other things as kind of the raw
15 material that went into forming my opinions.

16 The other thing I would say about your
17 question is that there is a -- there are sections
18 that describe each of these areas in great detail,
19 and I would say that the scope of those sections
20 represent the raw material that went into forming
21 my opinions and the opinions themselves. They're
22 much more extensive and much more detailed than
23 what is represented here in the summary.

24 Q. Where are your conclusions in your

1 report?

2 A. Well, they're in a section called
3 "Conclusions," but let me find it.

4 Page 120 is the beginning of the
5 "Conclusions" section.

6 Q. I see. Okay. Thanks. Let me put a
7 sticker on that so I can get to that later.

8 All right. And so the "Conclusions"
9 section beginning on 120, it seems to be related
10 to your conclusions or opinions with respect to
11 each of the individual bellwether plaintiffs,
12 including the four that we have now in the case,
13 right?

14 A. Correct.

15 MR. LANCIOTTI: Objection; form.

16 Q. And then -- would you then describe --
17 would it be a correct statement for me to say
18 that -- or would it be an accurate statement that
19 the opinions that you hold in the case that you
20 intend to testify about are summarized or briefly
21 described in your summary that appears on Page 2
22 of your report, and then the "Conclusions" section
23 that goes from Page 120 through Page 126?

24 A. No, I would not --

1 MR. LANCIOTTI: Object to form.

2 A. -- consider that an accurate statement
3 at all.

4 Q. Why is that not accurate?

5 A. Because what I intend -- what I believe
6 I will be asked to testify about is the full scope
7 of my report, which does not begin on Page 120
8 with a summary on Page 2. There is an
9 "Introduction" section that places the report in
10 context; there is a "Method" section that
11 describes what I did; there is a "Findings"
12 section which describes the findings that I made
13 and the information sources that I made them from
14 and the conclusions that I drew from those
15 findings; and there's a "References" section which
16 describes everything in great detail that are
17 cited in text in each of those sections.

18 The report is a holistic unit. That
19 represents what I will testify about.

20 Q. Okay. Take a look at Page 2 that I have
21 up on the screen here. You can either look at the
22 screen -- I don't care what you do -- as opposed
23 to looking at your actual paper report, whatever
24 is easier for you, but I want to ask you about the

1 third and fourth paragraphs to get started here.

2 So you describe in Paragraph 3 the
3 general causation issue concerning lead in the
4 water supply for Flint, and you say at the
5 conclusion here, "The salient issue, therefore, is
6 not whether incremental exposure via drinking
7 water can cause particular adverse health effects,
8 but whether such exposure can cause and/or
9 exacerbate, or contribute to causing and/or
10 exacerbating, these effects."

11 Would you explain that to me? What do
12 you mean by that?

13 A. Well, I think if you want an explanation
14 of that, the best place for that is in the
15 "Discussion" section. So if you're asking me for
16 an ad-lib kind of a thing, I'm happy to provide
17 that, but the report is the report. It explains
18 these things. These statements in the summary are
19 derived from a full explication of those issues in
20 the report.

21 What I'm basically saying is that there
22 are -- in the report there are -- and I don't
23 remember specifically with respect to the four
24 bellwether plaintiffs that are included in this

1 deposition -- but there are cases where the blood
2 lead levels predated the onset of Flint water use.
3 And so one has to ask the question, does Flint
4 water use cause something if the prior existence
5 of lead also is documented? And so, therefore,
6 you have to consider the question of whether it
7 makes it worse or it contributes to causing
8 something. And, therefore, that is basically what
9 that is all about.

10 Q. Okay.

11 A. And it is described in great detail. I
12 mean, I believe I was careful in describing that.

13 Q. So what is your opinion about whether
14 incremental exposure via drinking water can cause
15 adverse health effects or cause or exacerbate or
16 contribute to causing those health effects?

17 MR. LANCIOTTI: Objection; form.

18 A. Well, I will again preface my answer to
19 your question by saying that that is explicated in
20 the report in great detail, but I'm also happy to
21 also do a kind of an ad-lib approach to that.

22 If a person has some kind of learning
23 disability that predates the onset of Flint water
24 use or has some other condition that predates the

1 onset of Flint water use, and then you add to that
2 the Flint water use, it's very difficult to say
3 that the Flint water use caused something that
4 already existed. In that case, you can say,
5 perhaps, that the Flint water use exacerbated a
6 condition that was already there.

7 It also may have contributed to causing
8 a condition that has not yet appeared. Let's say
9 that a person has been exposed to lead and it's
10 documented in their lead levels in the blood, but
11 they don't have learning disability or some kind
12 of neurobehavioral consequence, but they might
13 eventually get one. And so the role of the
14 exposure to Flint water is to contribute to
15 causing, not uniquely to cause.

16 Q. Okay. Thanks for that.

17 I didn't mean to interrupt you. It
18 looked like you had stopped and completed your
19 answer. Is that true?

20 A. Yes. Yes, it is true.

21 Q. Okay. Then down at the end of
22 Paragraph 4, I want to ask you about this. And
23 I'm just trying to make sure that we know from the
24 outset of the deposition what you will -- what you

1 do not hold opinions about and what you will not
2 be testifying to at the trial, and I think it's
3 summarized here, at least in one area, so let's go
4 through this.

5 You say "I conclude further that lead
6 exposure can cause and/or exacerbate, or
7 contribute to causing and/or exacerbating,
8 numerous adverse health effects, for example,
9 cognitive, behavioral, and other neurological
10 effects. In view of the general causation of such
11 effects by lead, I leave to the personal
12 physicians of bellwether plaintiffs and of
13 potentially other plaintiffs the determination of
14 Pb, lead, causation/exacerbation via drinking
15 water in their specific cases."

16 What did you mean by that in terms of
17 what opinions you do not hold about specific
18 causation?

19 A. There is no -- there is no -- first of
20 all, let me preface again by saying this is a
21 summary of subjects that are explicated in great
22 detail later in the report. And so what I intend
23 or hope -- or assume that I will be asked to
24 testify about is the full scope of that which is

1 included in the report, not just in this
2 particular paragraph. That's just a preface.

3 What I think I'm getting at here is the
4 general causation issue is critical for a
5 physician to conclude that his or her patient has
6 a lead effect. If lead can't cause those effects,
7 then the patient doesn't have a lead effect. And
8 so I'm not a clinician, I'm not a physician, and,
9 therefore, the scope of my expertise involves that
10 question of general causation. I did not examine
11 these plaintiffs, and I would not be qualified to
12 do so, and, therefore, the specific causation is
13 out of the realm of what I can testify about.

14 Q. Great. That's what I was trying to get
15 at.

16 A. Okay.

17 Q. So, yeah. Is it correct, therefore,
18 that you do not hold any professional opinions in
19 the subject -- on the subject matter of specific
20 causation with respect to any of the four
21 individual bellwether plaintiffs; is that correct?

22 A. I think it's --

23 MR. LANCIOTTI: Objection; form.

24 A. I think it's more correct to say that

1 the focus of my activities in this report is on
2 general causation. It does not mean that I have
3 opinions on specific causation or that I don't
4 have opinions on specific causation. These are
5 issues that are beyond the scope of my expertise,
6 and so I exclude from the opinions in my report
7 anything that's beyond the scope of my expertise.

8 Q. Excellent.

9 A. Do I have some opinions? Well, maybe I
10 do and maybe I don't.

11 Q. I think you're referring to personal
12 opinions. I'm trying to get to your professional
13 opinions.

14 So just to make sure, you do not hold
15 any professional opinions within the area of your
16 expertise concerning specific causation, that is
17 to say, with respect to the four bellwether
18 plaintiffs, whether any of them -- any of those
19 plaintiffs have sustained any specific injuries or
20 ailments or adverse health effects because of
21 exposure to lead, correct?

22 MR. LANCIOTTI: Objection; form.

23 A. Yeah. I'm -- we're in the realm of an
24 area beyond my expertise, and that area is

1 semantics. You're making a distinction between
2 personal and professional opinions. My opinions
3 in this case are all professional opinions. Some
4 of them are expressed, some of them aren't
5 expressed, and some areas I have more experience
6 and more expertise, and in other areas I have
7 less, and those have been excluded from this
8 report. I think that's pretty clear.

9 Q. Right.

10 So you do not hold any professional
11 opinions because they're beyond your expertise
12 concerning specific causation, that is to say,
13 whether any of the individual four bellwether
14 plaintiffs have sustained any particular injury,
15 ailment, or adverse health effect because of lead
16 exposure, right?

17 MR. LANCIOTTI: Objection; form; asked
18 and answered.

19 A. Yes. Asked and answered is a perfect
20 phrase for that.

21 I believe that I have emphasized that my
22 report is silent on that issue because my
23 expertise is -- I'm not able to make professional
24 opinions, as you would call them, on that issue.

1 Do I have opinions? If I do, those are
2 professional opinions. If I don't, that's fine,
3 too. But they're not in the report. They're not
4 the focus of my activities. They're not the focus
5 of my activities because they're not within the
6 realm of my expertise.

7 Q. Okay. We'll close out of the report for
8 now.

9 MR. ROGERS: And why don't we go ahead
10 and take that first break. I think this might be
11 a real good time for a quick break. And I'll
12 figure out what I'm going to turn to next. So
13 let's take, you know, a short, short break, no
14 more than five minutes. Okay?

15 VIDEOGRAPHER: The time is 9:51 a.m.,
16 and we're off the record.

17 (Recess taken.)

18 VIDEOGRAPHER: The time is 10:00 a.m.,
19 and we're on the record.

20 BY MR. ROGERS:

21 Q. Okay. Dr. Michaels, I put up on the
22 screen Exhibit 2, which is your CV, and I want to
23 ask you about the description here in the middle
24 of the page, professional experience, April 1986

1 to the present.

2 I note that before -- or you graduated
3 from Stony Brook -- sorry. Start over again.

4 You got your BS from City College of
5 New York, then you went to University of Georgia
6 for your master's, then you got your Ph.D. at
7 Stony Brook in August of '79.

8 What kind of work did you do in between
9 August 1979 and April 1986 when you started your
10 company, RAM TRAC?

11 A. When I first graduated from Stony Brook,
12 I had a job as a high school biology teacher in
13 the school that had a premedical program. And I
14 did that for -- I don't know, I did that for one
15 full year and part of another year.

16 And then I got a job in a consulting
17 firm down in Washington -- well, it was the
18 Beltway -- Rockville, Maryland. And that was
19 EnviroControl. It was a consulting firm in
20 Rockville. I only worked there for about -- under
21 a year because at that time, Anne Gorsuch was the
22 EPA administrator and had gutted all of the
23 projects that I was hired to work on. And so I
24 think 10 of us were laid off. I was there less

1 than a year.

2 And then I went to work for the governor
3 of the State of California who had an office
4 called the Office of Appropriate Technology. That
5 was Jerry Brown. And I worked there also for
6 under a year. Jerry Brown, I guess, lost an
7 election, and, anyway, that office was being
8 eliminated. And so I can't remember the
9 exact years. I have documentation of the dates if
10 you need it.

11 And then I got a job working for a
12 consulting firm in Long Island called
13 Henderson & Bodwell. I had a six-month contract
14 with them. And there, I guess I was trying to get
15 work for them and bring their qualifications up to
16 date, and I also worked on certain projects. They
17 worked mostly for -- well, it doesn't matter.

18 So then after that -- after that, I got
19 a job for the U.S. Congress, Office of Technology
20 Assessment, working on the decision-making process
21 for the evacuation, later repopulation of
22 Love Canal in New York.

23 And then -- then I had a job in Maine
24 for Envirollogic Data, another consulting firm in

1 Portland, Maine. And I was their chief toxicology
2 consultant.

3 And after that, I had a job with the
4 Natural Resources Defense Council, or NRDC, in
5 New York City as their toxicologist. And that
6 job -- that job was -- I believe, if I recall
7 correctly, that job was four days a week. And the
8 extra day -- five days a week -- in that extra
9 day, I was allowed to do private consulting. And
10 that is how my career as a private consultant got
11 started. People magically called me up and I got
12 jobs, and I eventually went off on my own.

13 And during this period of time, I had
14 not yet incorporated RAM TRAC. So that was
15 actually -- the RAM TRAC Corporation activity
16 actually predates April of 1986. That was the
17 incorporation date. I don't remember exactly how
18 long I was doing that before the incorporation of
19 RAM TRAC, but I do have those records as well if
20 you need them.

21 Q. So as of April 1986, at least as of that
22 date, going forward to the present, your
23 employment has been exclusively for RAM TRAC -- or
24 with RAM TRAC?

1 A. Yes.

2 Q. And tell me the type of consulting work
3 that RAM TRAC has done since 1986, just in general
4 terms.

5 A. Well, it's been very diverse.
6 Essentially toxicology and health risk assessment,
7 the assessment and the management of risks. I
8 have worked for a number of public interest
9 organizations, a number of state and federal and
10 local agencies, and I've worked for a good number
11 of Fortune 500 companies. Those companies have
12 included General Electric, FMC, Monsanto. The
13 Zinsser; it's a national paint company. There was
14 the National Coal Association. Inter-Power of
15 New York. Lots of hospitals. The Rhode Island
16 Department of Environmental Management. Many,
17 many different roles.

18 Q. At what point in time did you start
19 doing any consulting with lawyers?

20 A. You know, there were always lawyers
21 involved. I don't know. I would say from day one
22 probably. I was not primarily asked to be an
23 expert witness, but I was increasingly asked to be
24 an expert witness as time went on and my

1 reputation was probably expanded. I've always
2 worked with lawyers, I guess.

3 Q. Do you work with both plaintiffs' and
4 defendants' lawyers?

5 A. Absolutely. That's a big part of my
6 practice, to work on either side. The only thing
7 I require is to be allowed to do an objective
8 analysis.

9 Q. Do you have any estimates in terms of
10 the breakdown over, let's say, like, the last
11 five years, plaintiffs versus defendants?

12 A. I don't have a breakdown of revenue, and
13 I don't have a breakdown of time. I don't have a
14 breakdown of the number of clients. But I will
15 say that I have adequately represented both sides
16 during the last five years and during my entire
17 career. And, you know, during the last
18 five years, for example, I've had the Anschutz,
19 international oil exploration company, as a client
20 in a case in western New York. That was a big
21 case, a billion-dollar case. And that, I believe,
22 was the last time I had a deposition. That was in
23 Washington, D.C.

24 But, no, I've worked on both sides.

1 Q. Have you worked with Mr. Lanciotti's
2 firm, the Napoli law firm, before?

3 A. No.

4 Q. Have you ever worked with Mr. Stern's
5 firm, the Levy Konigsberg firm, before?

6 A. No.

7 Q. Do you know how it is that they came to
8 ask you to work with them on the case, if it was a
9 referral or anything like that, do you know?

10 MR. LANCIOTTI: Objection; form.

11 A. I don't know the answer to that. I have
12 a suspicion that it had something to do with being
13 invited by the New York State Bar Association to
14 make a presentation in New York City at the end of
15 January in 2020. I was told it was a good
16 presentation, and there were a number of people
17 interested in me as a result.

18 Q. What was that presentation about?

19 A. Emerging issues in toxic substances that
20 might be of interest to lawyers.

21 Q. Did it include lead?

22 A. It included lead, yes, absolutely. Yes.

23 Q. Is there -- do you have a written --
24 written materials that were -- that you used or a

1 PowerPoint presentation or anything like that
2 concerning that presentation?

3 A. I do. It is on ResearchGate. You can
4 gain access at no charge to anything of mine --
5 almost anything of mine on ResearchGate. And that
6 presentation is among those.

7 Q. Okay. I honestly haven't heard of that
8 entity or that thing before, ResearchGate.

9 What is that?

10 A. Well, I guess it's a social media kind
11 of a thing, but it's for researchers. It's for
12 people who are in academia and for people who are
13 in research of various kinds, consulting or
14 whatever. I think it is heavily weighted toward
15 academia. It's an international organization.
16 You can see that on the page that you're
17 displaying, there are ResearchGate statistics as
18 of the 6th of August in 2020. Those reflect the
19 ratings that I've received by ResearchGate. And I
20 put them on there because, number one, they're
21 good, and, number two, they're widely accepted.
22 I'm actually a little surprised that there are any
23 lawyers who haven't heard of it.

24 But in any case, that is -- it's

1 ResearchGate.org, I think.

2 Q. Okay. So you're saying anybody could go
3 on ResearchGate.org and just input your name and
4 there's a bunch of papers and presentations and
5 stuff on that site that you've authored?

6 A. Yes. As of the 6th, you can see there
7 were 96 research items.

8 Q. I see.

9 Okay. Is this something that you submit
10 your papers to this website, or do they solicit
11 them, or how does that work?

12 A. My papers are generally published in
13 journals, but I can submit anything I want to
14 ResearchGate. And I have submitted some newspaper
15 letters to the editor to ResearchGate on the --
16 one case, on the COVID-19 epidemic. I think I
17 might have submitted one or two. On PCB dredging
18 in the Hudson River, there I had -- in addition to
19 a good publication record in journals, I've had
20 some letters published because my opinions locally
21 are very influential on PCB dredging.

22 If you publish something in a way that
23 you might call self-publishing, you can put it on
24 ResearchGate, anything you want.

1 Q. Is there any type of screening or, you
2 know, review process before ResearchGate actually
3 accepts and puts the publications or the papers on
4 the website, do you know?

5 A. I don't believe there's anything like
6 that. I know they ask you if you're the author,
7 or they ask other people if you are the author, if
8 they know. So there are some minor controls on
9 that, but it's really not controlled very well.

10 Q. Well, I would hope so, that they know
11 who the author is.

12 A. Right. This is -- this is a repository
13 of information that generally comes from other
14 sources where those kinds of controls are
15 stringent.

16 Q. Can you describe to me any work that
17 you've done in the past -- and I'll take the CV
18 down now and stop the screen share -- on issues --
19 similar issues as you've worked on in this case,
20 that is to say, studying populations for lead
21 exposure and suspected lead poisoning from
22 whatever source during your career since 1986?

23 A. Well, I've had a lot of experience with
24 lead. And one reason for that experience is, as I

1 said, I worked a lot of hospitals, and some of
2 them have hospital incinerators. And one of the
3 issues always is what's coming out of the stack,
4 and lead is one of the things that has a low
5 melting and evaporation point and comes out of the
6 stack.

7 And so the question of exposure to lead
8 and toxic effects potentially caused by lead is
9 something that I've dealt with for a very long
10 time.

11 When I was at NRDC, I guess I had dealt
12 with it even before I had my own personal
13 consulting firm. And one of the first experiences
14 I had, actually, was on the news --
15 Peter Jennings' news when the EPA changed its
16 standard from 25 to 15 parts per billion in water
17 and they interviewed me about that.

18 So this was something that began very
19 early in my career dealing with lead and
20 continue -- continued all the time. I guess I had
21 another one the last several years involving
22 remediation of apartments, you know, hazards and
23 so on, where the lead is in the paint, and so
24 there are guidelines for workers doing that work.

1 And so I had one or two jobs in that area.

2 I had another job, which was
3 interesting, for the Army. The Plattsburgh
4 Air Force base had on it an Army firing range, and
5 somehow, often these things when they're closed
6 down, they -- I can't explain it, but they go to
7 elementary schools. And so there was a berm where
8 the kids were playing outside of their elementary
9 school, and every so often, one of the kids would
10 find a bullet, which contains lead, and some of
11 them would put it in their mouths. So I did an
12 analysis for the Army -- well, I mean, I was
13 subcontracting, but I did the analysis for the
14 Army of what were the risks associated with the
15 lead bullets that were found.

16 So I've had a lot of experience with
17 this substance -- with this group of substances.
18 That's enough said for now. That's what comes to
19 mind.

20 Oh, well, as I -- I mentioned also --
21 yes, I mentioned also this international oil
22 exploration oil company called Anschutz. The job
23 I had for them out in western New York involved
24 lead as well because people were experiencing foul

1 water in their homes, and the lead was one of the
2 substances in their water. And so again I dealt
3 with lead in that context as well.

4 So I'm sure I could come up with more
5 than that, but that's what comes to mind now.

6 Q. Okay. Thanks.

7 I think you were describing your
8 experience with lead issues in general. Let me
9 focus on water.

10 Have you done work in the past, before
11 this case, involving issues surrounding lead in
12 water and exposure to populations due to water
13 being the source of lead?

14 A. Well, as I said, the Anschutz case
15 involved people's water because it had lead in it.
16 And when I do an assessment of an incinerator, for
17 example, let's say a hospital incinerator, there
18 are several sources of lead. It comes out of the
19 stack, but it comes down to the ground and it runs
20 off into bodies of water. And so that becomes an
21 issue as well in those contexts.

22 And so in my reports, I generally dealt
23 with the question of lead in water as well.

24 Q. Okay. So besides the Anschutz -- well,

1 tell me a little bit more about that Anschutz
2 evaluation that you did. What were the
3 circumstances and what was your actual work?

4 A. Well, out in western New York -- and I
5 can't remember the name of the town -- there were
6 a group of homes that were in an area where the
7 Anschutz company was exploring for oil. We're not
8 allowed to do fracking, but they were allowed to
9 do drilling downward and horizontally. And there
10 were a couple of wells where they did that. And
11 there were -- there was an association made by
12 these residents of the activities of Anschutz and
13 the quality of their home drinking water. And I
14 evaluated that evidence and was -- I wrote a
15 report about it and was deposed on it. And that's
16 the context.

17 Q. Okay. Have you ever worked on a
18 project, whether it be in litigation or not
19 litigation, involving the evaluation of a town or
20 municipality's or a city's water supply for lead
21 and the potential for its -- people who drink the
22 water to be exposed to lead?

23 A. Well, if you're suggesting a case
24 involving -- or a project involving the water

1 supply without some kind of contributing factor, I
2 don't remember right now one that just involves
3 the question of lead in the water. But, of
4 course, in all of these cases where there were
5 incinerators involved, the water supply is exactly
6 what is at issue -- one of the things that is at
7 issue.

8 So, again, we're getting into the
9 semantic realm where, yes, I have dealt with it,
10 but usually in the context of some kind of an
11 industrial facility being located there. And
12 sometimes I've involved myself -- landfills, I've
13 been involved in a number of landfills, including,
14 as you know, Love Canal, and lead has been an
15 issue in many of those cases. And, again, with
16 runoff from the land, water supplies, whether in
17 wells or public water supplies, public wells or
18 public nonwell water supplies, those are issues as
19 well.

20 So lead is a pretty pervasive issue.
21 I've been involved with it for a long time, and in
22 the context that you've asked me about, I believe.

23 Q. Okay. Have you ever worked on any
24 projects or any lawsuits in the past, involving

1 issues of lead exposure in water supplies of
2 municipalities or towns or whatever, where the
3 source of the lead was suspected to be or turned
4 out to be from the system itself, that is, lead
5 pipes in the system?

6 MR. LANCIOTTI: Objection; form.

7 A. Well, I don't have any control over who
8 suspects what. When I answered the question, I am
9 sure that, you know, all kinds of things were
10 suspected. I'm generally involved in a particular
11 source, landfill or incinerator or some kind of
12 industrial facility.

13 I don't recall offhand somebody calling
14 me up and saying, "Well, you know, somebody's
15 complaining about the lead in the pipes." So I --
16 I don't recall something like that right now.

17 Q. So other than the -- your work on this
18 case, the Flint water litigation and the Flint
19 cases, you don't have a memory of ever having
20 worked on a project, whether it be litigation
21 related or not, involving lead getting into the
22 water supply due to some components of the water
23 supply system?

24 MR. LANCIOTTI: Objection; form.

1 A. Again, I find it very hard to
2 categorically rule out what you're suggesting
3 because there is an interaction between the water
4 and the water supply pipes and so on, and so there
5 is always the concern that that's a contributor.
6 But if you're asking about what I think you were
7 asking about before and the way I answered it was
8 adequate, I think, that I don't remember a town
9 calling me up and saying, "Gee, we have people
10 worried about the lead in the water pipes right
11 now."

12 Q. Yeah, I don't -- I don't know why it is
13 that you're having trouble understanding my
14 questions. Perhaps I'm not being specific enough.

15 But I'm simply asking whether you've
16 ever worked on a project, whether it be a private
17 project or you've worked on a case -- a litigation
18 case -- involving -- where your work involved an
19 analysis of whether components of the water
20 distribution system, the pipes, essentially, were
21 contributing lead into the water supply. That's
22 as simple as I can make it.

23 MR. LANCIOTTI: Objection; form.

24 A. I don't recall such a case right now

1 except insofar as I've parsed your question in
2 ways that you aren't happy with, but I -- other
3 than that, I believe I don't remember a case like
4 that --

5 Q. Can you --

6 A. -- or a project.

7 Q. Yeah, thank you.

8 So the question did include projects, so
9 I wasn't referring to just litigation, but your
10 answer included projects or work that you did and
11 litigation cases, right?

12 A. Yes. To the best of my recollection
13 now.

14 Q. All right. What are the primary sources
15 of lead in children in the United States?

16 MR. LANCIOTTI: Objection; form;
17 foundation.

18 A. Well, there are lots of different
19 sources. And the importance of those sources
20 probably varies geographically and also culturally
21 by the age of the kids and by the economic -- the
22 socioeconomic status of the kids. I believe I
23 cited an article like that.

24 But one can talk about water; one can

1 talk about air; one can talk about, you know,
2 hunting and fishing with lead bullets and lead
3 sinkers and so on; one can talk about lead in the
4 flesh of fish or hunted birds who might be eating
5 fish that had swallowed some of these lead
6 sinkers, for example. There are many different
7 sources.

8 Q. How about dust?

9 A. Dust, of course, yes.

10 Q. Paint?

11 A. Paint. And that was one of the projects
12 that I did mention to you about the Zinsser paint
13 company that was -- I did a couple of projects for
14 them. And lead, of course, was an issue in their
15 paint.

16 Q. Soil?

17 A. Soil, sure.

18 Q. And you mentioned air. What did you
19 mean by air as being a source for lead?

20 A. Well, I don't mean that it's the primary
21 source. What I mean is it's the vehicle, that if
22 you have a stack that is emitting combustion
23 products, that can include lead and it goes into
24 the water. Then you have the question of how much

1 is in the air, how long does it stay in the air,
2 and if it's raining, then it comes down to the
3 ground very quickly. And where does it go? It
4 goes into the water systems; it goes into the
5 soil.

6 All of that -- all of those are sources
7 of lead.

8 Q. You mentioned it varies depending upon
9 location. I think you mentioned urban versus
10 other environments, socioeconomic status.

11 Could you explain what you meant by
12 those references?

13 MR. LANCIOTTI: Objection; form.

14 A. Well, if you don't live near an
15 incinerator, you're less likely to get exposed
16 through that source. That's the kind of thing I
17 mean.

18 Q. What did you mean by "socioeconomic
19 status"?

20 A. Well, if your community is in a place
21 that has a lot of industrial facilities, you're
22 more likely to get exposed in such contexts than
23 if you live in Scarsdale, New York, for example,
24 where there aren't any facilities like that.

1 So socioeconomic status is very
2 important.

3 Q. Yep.

4 Okay. Before I forget, I believe that
5 you have in your report a disclosure that you have
6 not testified in any deposition or any trial in
7 the last four years.

8 Is that accurate?

9 A. I believe it's accurate. I checked my
10 records, and I don't think there was anything.
11 The Anschutz one, I believe, was the most recent
12 one. It must have been more than four years ago,
13 though.

14 Q. Yeah. Where was that case pending? You
15 said western New York. Was that where the case
16 was pending?

17 A. I -- again, if you need that, I can look
18 it up, but I don't know. I mean, I was deposed in
19 Washington by a Washington D.C. law firm.

20 Q. Okay. Do you know if it was in the
21 federal or the state court?

22 A. Again, I could look it up, but I don't
23 recall.

24 Q. You did not personally do any

1 inspections of the bellwethers' homes? And for
2 purposes of -- well, let me ask about all of them.

3 You haven't done any inspections
4 yourself of any of the bellwethers' homes that
5 would include all 14?

6 MR. LANCIOTTI: Objection; form.

7 A. No. I believe I'm supposed to testify
8 about the four selected bellwether plaintiffs, and
9 I will say that I have not.

10 Q. Same for all 14?

11 A. If it's okay to say that, yes, the same
12 for all 14.

13 Q. Have you reviewed -- have you been
14 provided with any information related to
15 inspections of any of the bellwethers' homes or
16 residences or houses for lead content in the dust,
17 paint, soil, et cetera?

18 A. I would have to look it up and see what
19 I have, but I got a lot of information about some
20 water testing, some -- some pipe replacements.
21 Inspections of pipes followed, in some cases, by
22 replacement of pipes. Again, I'd have to look it
23 up. I don't recall.

24 Q. I didn't see -- yeah, I didn't see in

1 your report. What I'm referring to is actually
2 there were some house inspections done, and some
3 data was provided about samples that were tested
4 for dust and sample paint chips and things like
5 that, and dust -- I'm sorry -- lead content of the
6 soil.

7 You haven't seen anything like that with
8 respect to any of the bellwethers' houses; is that
9 right?

10 A. Well, I know that this may seem like
11 quibbling, but I don't know what I've seen. I
12 know that if I haven't cited it, my report did not
13 rely on it. And maybe I did see such reports,
14 maybe I didn't. I don't remember.

15 Q. For purposes of analyzing or evaluating
16 the sources of lead for any individual person such
17 as the four bellwethers, wouldn't that be
18 information that would be important as part of
19 that analysis, that is, lead that exists in the
20 environment of the homes in which they live?

21 MR. LANCIOTTI: Objection; form.

22 Dave, you're trying to limit this
23 expert's testimony on home inspections that were
24 performed after his report was submitted.

1 Q. Go ahead, sir.

2 A. I don't understand your question. Can
3 you repeat it.

4 Q. Isn't it important when doing an
5 evaluation or analysis of the sources for lead for
6 any individual person that information about lead
7 in the individual's residence and the environment
8 in which they live, that is, dust, soil, paint,
9 and things like that, important to conduct such an
10 analysis?

11 MR. LANCIOTTI: Same objection.

12 A. Well, I was doing an analysis of the
13 impact of lead in the drinking water. I was not
14 doing an analysis on, you know, breaking down the
15 various sources.

16 As I've said before and acknowledged
17 before, some of those lead levels appeared even
18 before the use of Flint River. So I am aware that
19 exposure to lead occurs, and I've said
20 unambiguously that everyone has exposure to lead.
21 But I've tried to be very clear about the fact
22 that I'm looking at water in people's homes. I'm
23 looking at water in people's schools. I'm looking
24 at -- you know, if they go visiting to their

1 friends or they go visiting to their relatives, if
2 they have exposure to lead in Flint water. I know
3 for sure that they have other exposure, even
4 though I haven't analyzed each one of them.

5 Q. Is it correct that up until the present
6 time, you have not undertaken an analysis to
7 determine the extent to which lead in the dust,
8 paint, or soil of any of the bellwethers' homes
9 contributed to any of the lead that they were
10 exposed to? Is that right?

11 MR. LANCIOTTI: Objection; form;
12 foundation.

13 A. I believe that there is a grain of truth
14 to what you say, but if you look at one of the
15 tables that I provided -- one of the figures that
16 I provided by Hanna-Attisha, et al., there was a
17 distinct spike in blood lead levels that was
18 documented after the Flint water supply was
19 changed to the Flint River, and that does strongly
20 imply that the source of lead predominantly was
21 the Flint River. And so to that extent, I
22 certainly have ruled out everything else as
23 being -- that's the only thing that would change,
24 as far as I know. And so to that extent, I have

1 examined that issue. But if you're asking have I
2 listed the sources and written down what percent
3 of total exposure comes from that source, no, I
4 have not.

5 Q. Okay. You said that there was a grain
6 of truth in what I said. I'm just trying to ask
7 the question in a way that I could get a pretty
8 straightforward answer from you, and I'll -- so
9 I'll try it again.

10 The question is: Have you done an
11 evaluation or an analysis with respect to the four
12 bellwethers to determine the extent to which lead
13 in the dust, in the soil, or in the paint of the
14 homes in which they live contributed to their lead
15 exposure?

16 A. And I believe I've answered that
17 question --

18 MR. LANCIOTTI: Object to form.

19 A. -- exactly, which is that I have made
20 inferences about, you know, basically putting
21 limits on that by showing that before and after
22 the Flint River began to be used as a water
23 supply, the fraction of children who had elevated
24 lead levels increased. And it increased

1 geographically in relation to the specific water
2 content of lead, and, therefore, there are limits
3 to which you can attribute such exposure to other
4 sources.

5 Have I -- and as I also said, have I
6 added each one up and written down a percent of
7 how much is in that source? No, I have not done
8 that. And that's the grain of truth, I have not
9 done that.

10 Q. You mentioned limits.

11 What are the limits?

12 A. They're not quantitative limits.
13 Perhaps I misspoke in calling it limits.

14 What I'm saying is that when kids' blood
15 lead levels respond after a switch of water
16 supply, it's very difficult to attribute that
17 spike to something else. So there are limits to
18 which you can do that scientifically. It's not
19 reasonable.

20 As I've also said, there are other
21 sources of lead. Every kid, four bellwether
22 plaintiffs, every kid in Flint, every adult, has
23 exposure to lead from these other sources. I've
24 said that, and I've acknowledged that. Have I

1 written down what are those sources and what is
2 the percent contribution of each of those sources?
3 No, I have not. And I think that my answer has
4 been very clear as well, at least as clear as you
5 think your question was.

6 Q. Let me ask you some questions about
7 blood lead levels.

8 What constitutes a blood lead level that
9 would be significant from a toxicological
10 perspective?

11 A. Any elevation --

12 MR. STERN: Object to form.

13 A. Any amount of lead can be potentially
14 significant.

15 Q. How so? Can you explain?

16 A. Well, in toxicology, we use something
17 called a dose-response curve, and I've depicted
18 one in one of the figures in my report. And as
19 the concentration or exposure to lead declines,
20 the response declines, both in terms of the
21 severity of the response, the amount of time it
22 takes for the response to occur, all kinds of
23 characteristics of the response change and decline
24 with declining lead content.

1 Now, with most substances, possibly
2 including lead, there is a point called the
3 threshold below which nothing happens. And so the
4 dose-response curve cannot always be assumed to be
5 smooth and to gradually decline. But in the case
6 of lead, no such threshold has been discerned, and
7 multiple studies of high credibility that I have
8 cited have reported that, and that effectively --
9 I believe the word was "effectively" -- no
10 threshold has been observed. And in that
11 situation, we have a gradual decline, not -- so
12 you don't have a bright yellow line or a bright
13 line point when lead becomes significant or when
14 it does not.

15 I will tell you that we had a case in
16 New York decades ago where a toxicologically
17 insignificant amount of plutonium was found in the
18 New York City water supply. Is that
19 toxicologically significant? Well, one molecule
20 can't produce any effect, but is it significant?
21 Well, how the hell did it get there? I think
22 that's very significant. And the city took it
23 very seriously and so did the EPA and beyond.

24 And so, again, if you're talking about

1 toxicological significance, you have a wide range
2 of things to be talking about.

3 Q. Where did -- I'm just curious. Was it
4 ever discovered where the plutonium came from?

5 A. I don't know. I believe it was in one
6 of the upstate reservoirs. How did it get there?
7 I don't know. All I know now is if you feel like
8 going fishing at one of those reservoirs, don't,
9 because you'll be shot, probably with a bullet
10 containing lead.

11 So, yeah, I -- I don't know what the
12 answer to that is, but it was a historic event.
13 And it's the kind of thing that you don't find a
14 lot of plutonium in nature.

15 I'm raising this only because of its
16 relevance to Flint. Kids who have exposure to
17 lead at a particular level that's measured in
18 their blood have a marker of exposure. But how
19 quantitatively important is that marker?

20 Well, it could be very important. It
21 could be of no importance. It could be a
22 transitory thing that, you know, the kid licked
23 something that had lead on it and then it produced
24 a transitory response.

1 We have reasons to believe that that's
2 not the case. I have reasons to believe that
3 that's not the case. But the testing for lead in
4 these kids has been very sparse, and some of it
5 has come after the period of Flint water use.

6 Q. Okay. Thanks for that.

7 In terms of your field of toxicology,
8 has the scientific community of toxicologists or
9 within the field of toxicology established any
10 standards with respect to blood lead levels for
11 lead?

12 MR. LANCIOTTI: Object to form.

13 A. There are some standards or recommended
14 points, 5 microgram per deciliter does tend to be
15 a marker, after which the kids are thought to be
16 impacted by lead, possibly in clinically
17 significant ways requiring treatment.

18 If you -- I've published in my report a
19 distribution of lead levels in kids. I believe
20 that the 5 microgram per deciliter number
21 corresponds to something like the 97.5 percentile.
22 And the kids' lead levels that we see
23 predominantly have been falling a little lower
24 than that into some higher percentile as well.

1 But as I say, there's been very little testing for
2 lead.

3 Q. You used the term "marker" a couple of
4 times.

5 What does that term mean in the field of
6 toxicology with respect to lead levels?

7 A. An indicator. Indicator of exposure.
8 There are markers of effect, markers of exposure,
9 all kinds of markers.

10 Q. Okay. So what's the source of the
11 standard of 5 micrograms per deciliter in the
12 field of toxicology for blood lead level?

13 A. I believe that's the Centers for Disease
14 Control.

15 Q. And what -- do you -- why do you
16 consider it to be 5 micrograms per deciliter as a
17 significant standard for blood lead levels in the
18 field of toxicology?

19 MR. LANCIOTTI: Object to form.

20 A. I don't think that I do. I said that I
21 don't. I said there are significance of any
22 elevation of lead or any lead, actually, at all in
23 kids, that you have a gradual decline of effect in
24 accordance with the dose-response curve. And so

1 these are -- these standards, as you call them --
2 and I don't know if that's the technical legal
3 term for it, but these benchmarks, is I would call
4 it, are, in part, based on practicality. You have
5 the testing program, and if kids turn out in a
6 certain way, you may want to test them again, and
7 if they turn out that way again, you may want to
8 treat them, that sort of thing. And I guess if
9 you spoke with a physician, they would know more
10 about that particular procedure than I would know.

11 From a toxicology point of view, the
12 appearance of lead is a marker of concern at the
13 very least, and the kids who have such markers and
14 become plaintiffs in a case like this are not your
15 average kid. You don't just take an average kid
16 with a net and pull them in and say, "All right,
17 what's your lead level?" The people who become
18 plaintiffs are a nonrandom selection of the
19 population, and typically they also have some kind
20 of elevation of lead.

21 I think what's more significant and more
22 probative is this -- is the elevation of lead that
23 they have found in their bone tissue, which
24 indicates very significant exposure to lead. That

1 is more indicative of long-term exposure. The
2 blood tests have been very far between and very
3 sparse.

4 Q. That's my next series of questions you
5 anticipated, bone lead scans.

6 Prior to your work as a consultant in
7 these cases, the Flint water cases, have you ever
8 in any of your other lead work reviewed bone lead
9 scan test reports?

10 A. I don't recall doing so. Probably not.

11 Q. To your knowledge, is there any standard
12 in the field of toxicology about a bone lead
13 measurement or amount or content that would be
14 significant from a toxicological perspective?

15 MR. LANCIOTTI: Object to form.

16 A. Well, I have stated the standards or
17 benchmarks in my report, anything over 10 being
18 significant and anything, I believe, over 20 was
19 very intense exposure over a chronic period of
20 time. That is not the same as your question of
21 what is significant. In my view, what is
22 significant is when these numbers are elevated,
23 and if you have lead in somebody's bone, that is a
24 matter of some concern, especially if they're

1 young children.

2 Now, these bone scans were done in 2019,
3 and in one case, in 2020, years after the
4 experience of Flint River use. And so there was a
5 lot of time after that for these numbers to
6 decline.

7 And so the numbers we see extrapolated
8 back to what they might have been during 2014 to
9 '15, that would suggest to me very significant
10 exposure to lead.

11 Q. Okay. I haven't seen any calculations
12 or anything in your report where you did any
13 analysis or extrapolation back, as you just
14 described. Am I right, that you have not done any
15 such work for bone --

16 A. Yes, I --

17 MR. LANCIOTTI: Object to form.

18 Go ahead.

19 A. No, you are correct, that I did not. I
20 did not try to infer what those numbers were in
21 the past.

22 Q. Okay. And the references to
23 10 micrograms per gram and 20 micrograms per gram
24 of bone lead as having some significance from a

1 toxicological perspective, from where did you
2 derive those numbers?

3 MR. LANCIOTTI: Object to form.

4 A. I believe I was just quoting the
5 information source that I received giving the
6 result of the bone scan with a reference range.

7 Q. Right.

8 Have you read Dr. Aaron Specht's
9 deposition transcript?

10 A. No.

11 Q. Are you aware of the fact that he
12 withdrew -- or in his testimony, he said that
13 those reference values were not supposed to be
14 included on the reports and that they had no
15 relevance for purposes of his analysis?

16 MR. LANCIOTTI: Object to form;
17 foundation.

18 A. No. I'm certainly unaware of that.

19 Q. So apart from those reference values
20 that you derived from Dr. -- the bone lead scan
21 test reports themselves, you were not aware of any
22 other recognized standards for significance of
23 bone lead measurements, correct?

24 A. Only to the extent that I've cited them

1 in the report. I don't recall what I cited in
2 there. I'd have to look.

3 Q. All right. In terms of your work on the
4 case or your preparation, I don't remember asking
5 you this question directly so I'll ask it now, but
6 I don't think you mentioned it.

7 Have you ever had any conversations, not
8 with the lawyers but with other experts retained
9 for the plaintiffs in the cases as part of your
10 work in the case?

11 A. No.

12 Q. Have you received any of the other
13 expert reports from the plaintiffs' team or group
14 of experts in your work on the case?

15 A. No, I have not, but I did receive four
16 reports yesterday.

17 Q. What were they? Which ones were they?

18 A. Those were the -- how do you pronounce
19 that doctor who you're going to depose -- I don't
20 remember how you pronounce it.

21 Q. Bithoney?

22 A. Yes. I received four reports relating
23 to each of the four plaintiffs -- bellwether
24 plaintiffs.

1 Q. I see.

2 Okay. So apart from the reports from
3 Dr. Bithoney, you have not received any other
4 expert reports from any of the other plaintiffs'
5 experts; is that correct?

6 A. Well, no, it's not really correct. I've
7 talked to you about the reports that I've received
8 and have cited here, including physicians'
9 reports, medical records, and summaries of medical
10 records. Everything that I've received and looked
11 at has been cited in here. I believe that's the
12 best source of information. My memory is not the
13 best source.

14 Q. Okay. We're going to go through that in
15 a little bit.

16 So other than the Dr. Bithoney reports,
17 you don't recall having received any other reports
18 or, for that matter -- sorry. Bad question.
19 Strike the question.

20 Have you reviewed any deposition
21 transcripts of any expert depositions that have
22 been taken in the case?

23 A. No.

24 Q. And apart from the deposition

1 transcripts for the parents of the bellwether
2 plaintiffs, have you reviewed any other deposition
3 transcripts of any other witnesses in the case at
4 all?

5 A. Anything that I've reviewed is in here.
6 I don't believe there was anything like that. I
7 don't remember anything else like that. But, as I
8 said, the definitive answer is in the "Literature
9 Cited" section.

10 Q. You didn't do any independent interviews
11 of any of the bellwether plaintiffs or their
12 parents, did you?

13 A. No.

14 Q. Were you provided with all of the
15 bellwether plaintiffs' blood lead level testing,
16 to your knowledge?

17 A. I believe that I have not. There was
18 one reference to a blood lead value that was not
19 provided that I recall. I don't have any way of
20 knowing about the word "all" other than that.
21 I've received what I believe to be all of the
22 available tests.

23 Q. Just to make sure, you have not received
24 Dr. Krisztian's deposition, right?

1 A. I believe not. If it's not in the -- in
2 the literature cited, I would say that I have not.

3 Q. Yeah. And it took place after your
4 report, so it would be later.

5 Dr. Specht's deposition, you already
6 said you haven't received or reviewed that, right?

7 A. Right.

8 Q. There's another expert. I believe I'm
9 pronouncing his name correctly, Dr. Graziano, for
10 the plaintiffs. He's an epidemiologist.

11 Have you reviewed his deposition
12 transcript in the case?

13 A. No.

14 Q. All right.

15 MR. ROGERS: So it's about 11:00 -- a
16 little before 11:00. Probably a good time for a
17 quick break because I'm going to go into a
18 different line of questioning right now. It's,
19 you know, 10:53 or so. Why don't we break until
20 11:05, if that's okay with everybody, and we'll
21 pick up then. Is that good?

22 VIDEOGRAPHER: The time is 10:53 a.m.,
23 and we're off the record.

24 (Recess taken.)

1 VIDEOPHOTOGRAPHER: The time is 11:06 a.m.,
2 and we're on the record.

3 BY MR. ROGERS:

4 Q. Okay. Dr. Michaels, I want to ask you
5 some questions about some information specific to
6 the four bellwether plaintiffs, SPPI, TPPI,
7 VPPI, and WPPI. And I'm going to share my
8 screen and show you some things so that you can
9 see them. Let me start with that.

10 - - -

11 (Michaels Exhibit 5 marked.)

12 - - -

13 BY MR. ROGERS:

14 Q. Okay. The first is with respect to
15 blood lead levels for EPPI SPPI. And this is
16 now Exhibit 5. It's a blood lead level test
17 from -- let's see -- see in the upper right-hand
18 corner here where my cursor is -- I'll highlight
19 it for you -- February 16, 2016, and it has blood
20 lead measurements of less than 3 micrograms per
21 deciliter, right?

22 A. Yes, I see that.

23 Q. I think you mentioned this in your
24 report, but this is obviously after the switchover

1 back to Detroit water which occurred in
2 October 2015 or so, right?

3 MR. LANCIOTTI: Object to form and
4 foundation.

5 Q. Did you answer my question, Doctor? I
6 don't know if I heard an answer.

7 A. Let me turn the air conditioner off. I
8 don't think I heard your question.

9 Q. I was just trying to establish that this
10 blood lead level test that you see here as
11 Exhibit 5 of less than 3 micrograms per
12 deciliter -- less than 3.3, I should say -- the
13 date being February 16, 2016, that was after the
14 Flint water supply was changed back to the Detroit
15 Lake Huron water, right?

16 A. Correct.

17 MR. LANCIOTTI: Object to form and
18 foundation.

19 Q. So did -- as part of your work, did you
20 ever undertake an analysis to determine what the
21 mean or average blood lead levels were for
22 children in EPPI SPPI's age group as of this
23 period of time?

24 A. I believe I published something like

1 that in the report, and I also believe that the
2 average number that I've read in the past -- and I
3 can't remember where I've read this -- would be
4 about 1 microgram per deciliter. And I think it's
5 fair to say that in this type of a test -- can you
6 scroll down on that so I can see?

7 This was a capillary blood draw. These
8 are these quick tests that have a very high limit
9 of detection. So 3.3, in my mind, is not really a
10 probative nondetect, because the state-of-the-art
11 technology would be more like 0.1 microgram per
12 deciliter. And if you look at the bellwether
13 plaintiff blood lead levels that have been
14 positive, they tend to be less than 3 or 3.3. So
15 if those quick tests were undertaken for those
16 children who had a positive result, they also
17 would be reported as negative even though, in
18 reality, they're not negative, meaning not found.

19 And so I don't consider that a probative
20 test in any case.

21 Q. Are you aware of any water lead level
22 testing done on any of the homes that EPPi SPPi
23 lived in?

24 A. Well, if I am, it's in the report. I

1 don't recall. I'd have to look it up.

2 Q. You don't have anything in the report
3 about it; I can tell you that.

4 So as you're testifying, though, you're
5 not aware of any, right?

6 A. As I'm testifying --

7 MR. LANCIOTTI: Object to form and
8 foundation.

9 Q. Do you know what the service lines were
10 into any -- comprised of, composed of, as to any
11 of the residences where EPPi SPPi lived?

12 A. You know, I don't recall, and so I have
13 reported on that issue in the report, and that's
14 where I would refer you to that.

15 Q. Well, let's go over a few basics.

16 So you have the -- as of the time of the
17 switchover from Detroit Lake Huron water to
18 Flint River water, which occurred in April 2014 --
19 April 25th or thereabouts, right?

20 A. Correct.

21 Q. So you have the water treatment plant,
22 and then the water after leaving the plant flows
23 through pipes. And then from those pipes, there
24 are service lines leading into individual

1 residences throughout the city, right?

2 A. I assume so. I did not look into the
3 actual flow pattern.

4 Q. And are you aware that the City of Flint
5 through something called the FAST program, or the
6 FAST Start program, undertook inspections,
7 excavations, and replacement of some pipes
8 throughout the city, of service lines?

9 A. Yes, I am aware of that.

10 Q. So did you review as part of your work
11 in the case the FAST Start data to determine if
12 any of the bellwether plaintiffs' residences were
13 inspected, and if so, what the composition of the
14 service lines for those houses were?

15 A. I believe that I --

16 MR. LANCIOTTI: Object to form.

17 A. I believe I did look at each one of
18 those reports, although I don't -- I mean, each
19 plaintiff's addresses to see if they were
20 represented in that very long list of reports.

21 Q. And what did you find?

22 A. I don't recall the results of that.

23 Q. Do you remember any of the bellwether
24 plaintiffs' residences, the four that I'm talking

1 about now -- that we're talking about here,
2 S[PPI], T[PPI], V[PPI], and W[PPI], having lead
3 service lines?

4 A. I don't recall.

5 MR. LANCIOTTI: Object to form.

6 A. I don't recall.

7 Q. What do you know about when the
8 E[PPI] S[PPI] and his family stopped drinking
9 Flint River water after the switchover?

10 A. As far as I know, it's in the report. I
11 don't have a memory of each one of those. As you
12 know, there are 14 plaintiffs that I've examined
13 and -- whose cases I've examined, and I don't
14 remember.

15 Q. You don't remember the S[PPI] family
16 stopped drinking the water sometime in the summer
17 of 2014 or at the latest, the end of 2014?

18 A. No, I don't remember.

19 MR. LANCIOTTI: Object to form.

20 Hold on --

21 A. As I said --

22 MR. LANCIOTTI: Dr. Michaels, hold on.

23 Object to form and foundation.

24 Go ahead.

1 A. As I said, I don't remember. Whatever I
2 found is in the report.

3 Q. In the report -- I'll pull it up for you
4 for S[PPI] -- and you can look at it. It is on
5 Page 123 if you have your paper copy handy.

6 You say -- I'll highlight this section
7 here -- under the heading -- oops. That didn't
8 take.

9 VIDEOGRAPHER: It isn't currently being
10 shared.

11 MR. ROGERS: Oh. Sorry about that.
12 Thanks, Bob.

13 BY MR. ROGERS:

14 Q. Okay. Can you see that now,
15 Dr. Michaels, up on the screen?

16 A. Yes.

17 Q. So this is in the "Conclusions" section
18 of your report that we talked about earlier that
19 you said began on Page 120 and includes these
20 pages here. But you have -- you see it's
21 E[PPI] S[PPI], exposure. Under "Causation of
22 Health Effects," you say, quote, "In view of the
23 general caution of such effects by lead, Pb, I
24 leave to E[PPI] personal physicians the

1 determination of lead causation/exacerbation via
2 drinking water in his specific case," right?

3 A. Correct, yes.

4 Q. And that's consistent with our
5 discussion early on about the difference between
6 general and specific causation and how you were --
7 you didn't have the expertise to opine about
8 specific causation for any particular health
9 effects for these children, right?

10 A. Yes, that's correct.

11 MR. LANCIOTTI: Object to --

12 Q. Okay.

13 MR. LANCIOTTI: Object to form.

14 Q. And while we're at it, I just want to
15 show you that you say the same thing with respect
16 to all four of these children, so why don't we
17 just cover that now.

18 The next plaintiff here in alphabetical
19 order is APPI [REDACTED] TPPI, and you have the same
20 statement at the bottom of -- or at the end of the
21 "Causation of Health Effects" paragraph for her,
22 right?

23 A. Correct.

24 Q. And then for RPPI [REDACTED] VPPI [REDACTED],

1 scrolling down a little bit more, same sentence at
2 the end of the "Causation of Health Effects" for
3 him, right? Or, I'm sorry --

4 A. Yes.

5 Q. -- it's a she. RPP1 a she, girl.

6 But same sentence there, right?

7 A. Correct.

8 Q. And the same with respect to

9 D PPI W PPI, who is a girl, same sentence there
10 about no opinions that you have about specific
11 causation for health effects for her, right?

12 A. Well, I think you just stated it a
13 little differently. I think my statement in the
14 report is very clear, that I leave to the personal
15 physician the determination of specific causation.

16 Q. Yeah. And the reason for that is that
17 on that subject, you don't have the expertise to
18 opine about subjects of specific causation for
19 lead exposure for health effects in children,
20 right?

21 MR. LANCIOTTI: Object to form.

22 A. Well, as I tried to explain earlier, I
23 have what you call professional opinions that may
24 include opinions about specific causation. I have

1 not opined on specific causation in this report
2 because it's beyond my area of expertise. Because
3 I am not a physician, I cannot -- I'm not a
4 clinician, I don't examine these plaintiffs, and I
5 did not examine the plaintiffs. If the physician
6 convinced me that certain aspects of the -- of his
7 examination were clear, I think I might form an
8 opinion on specific causation as well. It's just
9 something I didn't do in this report.

10 - - -

11 (Michaels Exhibit 6 marked.)

12 - - -

13 BY MR. ROGERS:

14 Q. Let's go to Exhibit 6, which has to do
15 with the **TPPI** plaintiff, a bone -- I'm sorry --
16 blood lead test that was done on January 12th,
17 2016, and the report is reporting here capillary
18 blood draw less than 3.3 micrograms per deciliter,
19 right?

20 A. I don't know. I don't see it, but I
21 assume you're correct.

22 MR. LANCIOTTI: Yes.

23 Q. Oh, I'm sorry. I stopped sharing the
24 screen again. My bad.

1 There we go. Can you see it now?

2 A. Yes, I do. I don't see the name of
3 the -- oh, yes, there it is. Okay.

4 Q. Okay. So other than this blood lead
5 test report, are you aware of any other blood lead
6 tests on Ms. T **PPI**?

7 A. As I said, if I'm aware of them, they're
8 in the report.

9 Q. You keep saying that, Doctor. Okay?
10 I'm asking you now. Okay?

11 Are you aware, as you're sitting here
12 testifying today, of any other blood lead tests
13 for A **PPI** T **PPI**?

14 A. All right. I'm going to take --

15 MR. LANCIOTTI: Object to form.

16 A. I'm going to take a minute and look at
17 my report and tell you if I'm aware, because I
18 don't know if I'm aware or not.

19 Q. Okay. Where would that be found in your
20 report?

21 A. In Table 1, and I do see that that's the
22 only report that I have, yes. I'm not aware of
23 any others.

24 Q. Okay. Thank you.

1 So let's turn to that -- well, you know
2 what? Let's go through -- I'll tell you what.
3 Why don't we go through the reports that I'm going
4 to show you first. And to that point, you do have
5 a table or a figure, chart, whatever you want to
6 call it, of blood lead levels for the four
7 plaintiffs on Page 11 of your report. So let's
8 get through these actual blood lead tests, and
9 then we'll go to that page of your report when we
10 finish. Okay?

11 A. Okay.

12 Q. In terms of Ms. T~~PPI~~, do you have any
13 information about any water lead level tests that
14 were done on any of the homes that she lived in?

15 A. I believe I would have that in a table
16 if I -- I don't believe I -- no, I don't believe I
17 have specific data about that.

18 Q. Thank you.

19 Same thing with respect to the service
20 line that I was asking you about E~~PPI~~ S~~PPI~~.

21 Do you know what the composition of any
22 of the service lines were in any of the houses
23 where Ms. T~~PPI~~ lived?

24 A. No, I don't believe I have that

1 information about T PPI.

2 Q. What part of the report were you looking
3 at so I could take a look at those pages that you
4 just referred to to answer that question?

5 A. Page 53 and up to Page 57.

6 Q. Okay. So for each of these plaintiffs,
7 you have a section on each one of them, and one of
8 them is entitled "residential water supply."

9 Is that the area of the reports that you
10 would look at to determine if you had any
11 information about whether the service line was
12 lead or something else?

13 A. Yeah. I believe I would also look for
14 that there.

15 Q. Is there -- can I ask you, is there some
16 reason why you didn't research from the FAST
17 program what the composition of the service lines
18 were for the houses where the bellwether
19 plaintiffs lived?

20 A. I believe --

21 MR. LANCIOTTI: Object to form.

22 A. I believe that I did. I believe that I
23 looked at each one, at each address, in the FAST
24 database.

1 Q. Okay. So where in your report do you
2 record the information -- or report the
3 information that you learned about that subject,
4 whether they had lead service lines or not?

5 A. If they had lead service lines, I think
6 I would have recorded it. I'm not sure I recorded
7 the negative. I mean, I see that I have not.

8 Q. Okay. So that -- but that's an
9 important point, isn't it? That as part of the
10 evaluation you were doing on the potential for
11 lead exposure, whether the service lines were
12 comprised of lead or not, that's a really
13 important factor, isn't it?

14 MR. LANCIOTTI: Object to form;
15 foundation; move to strike the colloquy.

16 You can answer.

17 A. Yeah, I consider that an important
18 issue.

19 Q. So you did research the FAST Start data
20 information to determine whether any of these
21 residences where the bellwether plaintiffs lived
22 were comprised of lead, and since you did not
23 report in any of -- for any of them that the
24 service lines were lead, your conclusion was that

1 they were comprised of something other than lead,
2 right?

3 MR. LANCIOTTI: Object to form;
4 foundation; mischaracterizes his testimony.

5 A. Yeah, I don't recall. This was done a
6 half year ago. I don't really know at this point
7 in time. I can't remember specifically. I know
8 that I had multiple sources of information. Some
9 of them were the bellwether parent depositions,
10 and I believe some of them mentioned replacements
11 of pipes outside of their homes.

12 I don't recall. Anything that is not
13 cited, I find very difficult to answer
14 definitively.

15 Q. Is there anywhere in your report, any
16 references, to what the FAST Start information
17 reported or contained about the composition of the
18 lead service lines in the houses where these four
19 bellwether children lived, sir?

20 MR. LANCIOTTI: Object to form; asked
21 and answered.

22 A. I see that for T^{PPI}, I did not cite FAST
23 report. V^{PPI}, did not cite that. S^{PPI},
24 did not cite that. W^{PPI} -- it looks like I did

1 not cite those reports at this point. I do
2 remember looking at those reports. I don't
3 remember what I did with them exactly. I thought
4 that I recall the series of addresses and, in many
5 cases if not all cases, the addresses that I saw
6 did not correspond to the addresses in -- that I
7 was looking at. I don't recall the answer
8 definitively.

9 Q. All right. I asked you -- I'm going to
10 ask you again just to make sure because I think
11 your earlier answer was a little bit different.

12 As you sit here today, do you remember
13 whether or not you researched the FAST Start
14 program data to determine what the composition of
15 the service lines were for any of the residences
16 where the bellwether plaintiffs lived?

17 A. I believe my answer --

18 MR. LANCIOTTI: Object to form.

19 Object to form; asked and answered.

20 A. Yeah, I believe I asked -- that you
21 asked it and I answered it. I believe that I
22 looked at that data. I believe that I saw long
23 tables of addresses and tried to compare the
24 addresses that I saw in the table with the

1 addresses of the bellwether plaintiffs that I had
2 listed in my report. And as I recall, I -- if I
3 didn't cite it, it's probably because they didn't
4 occur in that database. Were there other data? I
5 don't know. But I believe that I had an enormous
6 database of that kind and that I was not
7 successful at finding this information or I would
8 have cited it.

9 Now, as I also mentioned, there were
10 other sources of that information, specifically
11 the bellwether parent depositions, which sometimes
12 made reference to pipe replacements outside of the
13 home.

14 Q. Dr. Michaels, the FAST Start program, as
15 we discussed earlier, involved actions undertaken
16 by the City through contractors to excavate
17 service lines leading into homes in making a
18 determination as to whether or not they were made
19 of lead.

20 Is that a true statement?

21 A. I believe so.

22 MR. LANCIOTTI: Object to form and
23 foundation.

24 Q. And what I am asking you, sir, is since

1 that is the case, did you determine through
2 looking at the FAST Start data with respect to the
3 addresses where the bellwether plaintiffs lived
4 whether or not it was determined that those
5 service lines were made of lead or not?

6 MR. LANCIOTTI: Object to form; asked
7 and answered.

8 A. I believe that I did, and I believe that
9 I did not find those answers.

10 Q. So you're saying that you did not find
11 within the FAST Start data reports and evidence
12 that, in fact, the residence where the bellwether
13 plaintiffs lived that you have photographs of in
14 your report were not comprised of lead?

15 MR. STERN: Objection; asked and
16 answered.

17 I know you're not getting the sound bite
18 you want, but he's answered the question five
19 times.

20 Q. Your answer, sir?

21 A. I think I'll stick with those five times
22 I've answered it.

23 Q. Okay. So you don't know -- is it
24 correct to say, then, that you don't know whether

1 or not the FAST Start data contains information
2 that, in fact, the service lines that were going
3 to the four bellwether plaintiffs' residences were
4 not comprised of lead; is that right?

5 MR. LANCIOTTI: Object to form; asked
6 and answered.

7 A. I --

8 MR. LANCIOTTI: Mischaracterizes his
9 testimony.

10 A. I believe you are asking me to
11 memorize -- to remember things that I don't
12 remember. And so I can tell you that if I had
13 positive information that I got from this
14 FAST Start program that said they were composed of
15 lead, I probably would have put it in the report.
16 If I didn't put it in the report, as I said, there
17 were also other sources of information from the
18 bellwether parents.

19 The database that I had was very large.
20 Frankly, the time that I had was not so very
21 large. And I did the best that I could. And at
22 this point in time, what's not in the report is
23 certainly not in my memory.

24 Q. We'll turn to the plaintiff VPPi [REDACTED],

1 who has some blood lead reports. And if you want,
2 while we're at it, why don't we do it this way,
3 just to try to be more efficient.

4 For -- let's go back.

5 For EPPI -- do you have Page 11 of your
6 report handy that you can look at in paper form?

7 MR. LANCIOTTI: David, you're still
8 sharing your screen.

9 MR. ROGERS: Yeah, that's okay. We're
10 going to get to a report in a minute. But I'll
11 stop it for now.

12 BY MR. ROGERS:

13 Q. So the Table 1, it's called, actually,
14 in your report on Page 11 -- we don't need to
15 share the screen for this, I just want to go
16 through this -- you have for EPPI SPPI a record
17 of a blood lead level from February 17, 2016 that
18 you describe as finger stick that was less than
19 3.3 micrograms per deciliter, right?

20 A. Yes.

21 MR. LANCIOTTI: Dave, I'm sorry. As a
22 courtesy, do you mind putting the report up on the
23 screen so I can follow along for the record? I
24 don't have the report in front of me.

1 MR. ROGERS: Okay. Yeah, I'll do that.

2 MR. LANCIOTTI: Thank you.

3 MR. ROGERS: You owe me one, Patrick.

4 As you know, taking the deposition, the
5 screen sharings are problematic sometimes.

6 MR. LANCIOTTI: I appreciate it.

7 MR. ROGERS: Yep. You're welcome.

8 BY MR. ROGERS:

9 Q. We're going to go to the report. We're
10 going to go to Page 11.

11 MR. ROGERS: Okay. Everybody see that
12 all right? Patrick, you included?

13 MR. LANCIOTTI: Yes. Thank you.

14 BY MR. ROGERS:

15 Q. So for EPPI SPPI -- you can see my
16 cursor here, it's what I just described --
17 3.3 micrograms per deciliter on February 17, 2016,
18 right?

19 A. Less than 3.3, yes.

20 Q. Sorry. Less than 3.3.

21 So when I showed you the blood lead
22 level test report that is Exhibit 5, that had that
23 information.

24 So just to clarify, then, you're not

1 aware of any other blood lead levels for

2 EPPPI SPPPI besides that one, correct?

3 A. Correct.

4 Q. Okay.

5 MR. LANCIOTTI: Object to form.

6 Q. Thank you.

7 And with respect to Ms. T PPI, I showed
8 you -- which was Exhibit 6 -- the report for her
9 on January 12th, 2016. Again, the measurement
10 being less than 3.3 micrograms per deciliter.

11 So that's the only blood lead level
12 report you have for her, right?

13 A. Correct.

14 Q. It says here "rectal" for her.

15 Why did you record that as rectal?

16 A. I probably just copied it from a medical
17 record.

18 Q. Because -- what's the difference between
19 a blood lead test that was obtained rectally
20 versus, you know, either venous or a finger stick?

21 A. Well, I'm no expert on that particular
22 distinction. I was just being complete.

23 Q. Because the blood lead test for that one
24 is similar to the one for S PPI. It shows a

1 capillary blood test. Let's just make sure --
2 I'll go back to that one, which is Exhibit 6. You
3 see here it says "capillary blood draw, assay of
4 lead," et cetera.

5 Is there anything on here that leads you
6 to believe that it was a rectal exam or test?

7 A. Well, you're scrolling quickly. I don't
8 think so, but I --

9 Q. Yeah. I don't mean to do that to you.
10 I'll put the whole thing up so you can see it and
11 take a look at it. If you want me to scroll down
12 more, you let me know.

13 A. No, I don't see anything like that. I
14 didn't invent it, but I don't see that in this
15 particular document.

16 Q. Okay. Is it possible that is a
17 mistake --

18 A. It's always possible --

19 Q. -- in your chart?

20 A. -- that there's a mistake.

21 Q. Okay. So turning -- okay. So let's get
22 to VPP, then.

23 So going back to your report, the
24 problem is I can't do both at the same time and

1 Patrick has the issue.

2 MR. FLETCHER: Dave, let me know if you
3 want me to share my screen.

4 MR. ROGERS: No, that's all right.

5 BY MR. ROGERS:

6 Q. All right. Let's go through these and,
7 Doctor, just try to --

8 MR. LANCIOTTI: Dave, I --

9 MR. ROGERS: Yeah, what?

10 MR. LANCIOTTI: I apologize to
11 interrupt. But I believe in PDF, the format that
12 you have, you can open up multiple tabs,
13 essentially, like a web browser and you can go
14 back and forth to the different PDFs that you have
15 open.

16 MR. ROGERS: Well, you can do that but
17 I'm not going to be able to figure it out, so
18 let's just go through.

19 So I'm going to mark as Exhibit 7 --

20 BY MR. ROGERS:

21 Q. Doctor, you keep your table in front of
22 you. All right? And even though Patrick can't
23 see it, I think this is the easiest way to do it,
24 and we'll go to the table at the end. All right?

1

- - -

2

(Michaels Exhibit 7 marked.)

3

- - -

4

BY MR. ROGERS:

5

Q. So I'm going to show you this document.

6

And the point is we're just trying to find out

7

what you know about blood lead level tests for the

8

plaintiff. Okay?

9

So here's Exhibit 7. It's a blood lead

10

level test of February 6, 2018, and it says here,

11

"low, less than 3.3 micrograms per deciliter

12

blood," right?

13

A. Did you say 2018?

14

Q. Yep. See this up in the upper

15

right-hand corner?

16

A. Yes. I have -- vPPI [REDACTED]? I have --

17

we talk about mistakes -- I have 2014 and 2015.

18

This one is 2018. Oh, there it is. Wait. I

19

think I found it. No, I didn't.

20

Q. No, you're right. You know what?

21

You're 100 percent correct. My bad. That was --

22

that had to be the printout date. And you are

23

correct. Let me -- let me get rid of this.

24

Anyway, forget that highlight in the

1 upper right.

2 It says here "order date, 11/3/2014."

3 Do you see my cursor that?

4 A. Yes, that's what I have on my table.

5 Q. Right. And you are right. And on your
6 table, you have that listed there for

7 R[PPI] v[PPI] right?

8 A. Yes.

9 Q. Okay. And is there any way for you to
10 tell whether this one was a venous blood draw or a
11 finger prick -- finger stick-type blood draw?

12 A. I don't see it on that page, but I have
13 it on my table as finger stick.

14 Q. Okay. Thanks.

15 And then it says here, "collection date
16 11/3/2014," so we've got that straightened out.

17 All right. So going to the next one,
18 Exhibit 8 will be for R[PPI] v[PPI] again.

19 - - -

20 (Michaels Exhibit 8 marked.)

21 - - -

22 BY MR. ROGERS:

23 Q. The blood order date was September 2nd,
24 2015, and the amount here is recorded at

1 .7 micrograms per deciliter.

2 Do you see that?

3 A. Yes, I do.

4 Q. And you have that recorded on your
5 Table 1 on Page 11 of your report as well, right?

6 A. Correct.

7 Q. So do you know whether -- do you know
8 when the VPPi family moved to Flint?

9 A. That is in my report. I don't know
10 offhand.

11 Q. Okay. If I were to tell you it's
12 September 2015, that would mean, if I am
13 correct -- and I believe I am correct -- that the
14 prior report for VPPi would have been at a
15 point in time before they moved to Flint?

16 MR. LANCIOTTI: Object to form;
17 foundation.

18 Q. That is November 3rd, 2014?

19 MR. LANCIOTTI: Same objection.

20 A. I don't know when they moved to Flint.
21 I'll have to look. I can look. I mean, it's not
22 hard to look.

23 Q. All right. We'll come back to that when
24 we get to that.

1 MR. ROGERS: I'm going to mark as
2 Exhibit 9 a blood lead level for
3 R[PPI] V[PPI].

4 - - -

5 (Michaels Exhibit 9 marked.)

6 - - -

7 BY MR. ROGERS:

8 Q. It's a test report. The order date was
9 January 14, 2016, and the amount here is
10 1.3 micrograms per deciliter, right?

11 A. Yes, I see that. And I don't see that
12 one in my report.

13 Q. Right.

14 A. Yeah, I don't see that one in the
15 report.

16 Q. So this report dated -- for the blood
17 lead -- it was ordered on January 14, 2016. That
18 was after the switchover back to the Detroit water
19 supply Lake Huron, right?

20 MR. LANCIOTTI: Object to form;
21 foundation.

22 A. Yes, that's correct.

23 Q. What is significant about that to you,
24 if anything, that there was a value recorded of

1 1.3 at that time?

2 MR. LANCIOTTI: Object to form.

3 A. Well, it's certainly nearly twice as
4 high as what was done in 2015 in September.

5 Q. That's the .7 that you mentioned, yeah.

6 What -- how does it compare to -- never
7 mind. We'll get to that later.

8 Let's go to Exhibit 10 and just finish
9 this off.

10 - - -

11 (Michaels Exhibit 10 marked.)

12 - - -

13 BY MR. ROGERS:

14 Q. So that one you didn't have -- and you
15 didn't report in your report at all, that last
16 one, right?

17 A. Well, I didn't report it on Table 1. I
18 can check and see if it's in another section of
19 the report. Hold on.

20 No. Apparently, I don't have that one
21 in the report.

22 Q. And here's another one ordered May 22nd,
23 2017, and it's reported at a value of .5 blood
24 lead level and the reference ranges in micrograms

1 per deciliters.

2 This one you don't have in your table
3 either, do you?

4 A. No.

5 Q. Okay. I think that's it for her.

6 So you have -- oh, I see. On your
7 table -- look at your table on Page 11.

8 Do the entries that are for
9 D[PPI] W[PPI] of March 24, 2016 and July 15th,
10 2016, those both relate to her, right?

11 A. Yes, those are for her, yes.

12 Q. I see. All right. That makes sense. I
13 think it was unclear on my section of that report.

14 I want to show you this one for
15 D[PPI] W[PPI]. It will be Exhibit 11.

16 - - -

17 (Michaels Exhibit 11 marked.)

18 - - -

19 BY MR. ROGERS:

20 Q. So here's a report dated, you see here,
21 9/25/09.

22 Can you see that?

23 A. Yes.

24 Q. And the amount that's measured there,

1 lead, 2.0, the reference range is in micrograms
2 per deciliter, right?

3 A. 2.0 -- can you repeat the question? I'm
4 not sure I understood what you're asking me.

5 Q. I'm just asking you that this test
6 report indicates that on September 25th, 2009,
7 there was a test done on D PPI W PPI's blood at
8 the Hurley Medical Center and that the measurement
9 was 2.0 micrograms per deciliter, right?

10 A. Yes, that's correct. I see that.

11 Q. So what significance does that have to
12 you from a toxicological perspective that she had
13 this blood lead level as of September 2009?

14 MR. LANCIOTTI: Object to form.

15 A. Well, I believe I've answered that
16 before by saying that everybody is exposed to
17 lead, and before they've moved to Flint, they are
18 also exposed to lead. Everybody has exposure to
19 lead. She clearly had exposure to lead.

20 Q. Yeah. She did live in Flint at this
21 time.

22 A. Oh, okay.

23 Q. But she had --

24 A. Well, before the exposure to the

1 Flint River, she also had exposure to lead, yeah.

2 Q. And if -- I think you testified that
3 when you did your research, you determined that
4 the average blood lead level measurements for
5 children was in the 1 micrograms per deciliter
6 range, right?

7 A. I believe that's the case, yeah.

8 MR. LANCIOTTI: Object to form;
9 foundation.

10 Q. So that would mean that as -- at least
11 as of September 2009, D[PPI] W[PPI]'s blood lead
12 level was about twice that average for children
13 that you found?

14 MR. LANCIOTTI: Object to form;
15 foundation.

16 A. Right. I don't know -- I don't know
17 where I got that value of 1. It's something I
18 read someplace. But I -- you know, whenever
19 you're dealing with an average, you're dealing,
20 you know, with a geographic area, you're dealing
21 with an age group. There are all kinds of caveats
22 to what that is. And so I don't -- I don't have a
23 strong basis of how to compare that.

24 Q. Let's go to Exhibit 12, which is another

1 blood lead measurement for D[PPI] W[PPI].

2 - - -

3 (Michaels Exhibit 12 marked.)

4 - - -

5 BY MR. ROGERS:

6 Q. And just to confirm -- I'm sorry, I
7 can't remember if I asked you that -- but that
8 2009 blood lead level measurement for D[PPI],
9 you did not have that in your table on Page 11 of
10 your report, right?

11 A. No, I did not have it.

12 Q. So with respect to this next one,
13 Exhibit 12, this is one that I do think you have
14 there. This is the one from March 24th, 2016, and
15 it's measured as less than 3.3 micrograms per
16 deciliter, right?

17 A. Yes, I see that one in my table.

18 Q. Yep. And it appears to be a capillary
19 blood draw?

20 A. Yes.

21 Q. Does that mean -- so if it's described
22 as a capillary blood draw, you record it as a
23 finger stick, and that's basically because there's
24 a little prick on the finger and that's how they

1 get the blood, right?

2 A. No, it's because that's where I read it
3 and the source indicated it was a finger stick.

4 Q. Oh.

5 A. The source indicates that it's a
6 capillary blood draw. Of course, fingers have
7 capillaries and so I don't consider those to
8 conflict with one another, but they are somewhat
9 different information.

10 Q. I gotcha. Thank you for that.

11 So you actually -- in your chart, where
12 you indicate finger stick, that's based on another
13 medical record which says the blood was drawn via
14 the finger, right?

15 A. Yes, that's correct.

16 Q. I see.

17 And then when you report venous, that
18 means what?

19 A. That I read it in a medical record. I
20 didn't --

21 Q. No, I know -- I'm sorry. I know that,
22 but what's the difference between a finger stick
23 and a venous blood draw?

24 A. Again, I don't see that as being a

1 conflict because there are veins in the finger,
2 there are capillaries in the finger. So it's just
3 how that was recorded. I don't know the answer to
4 why one terminology was used versus another.

5 Q. Okay. So the last one for Ms. WPPPI, I
6 believe, that you have as -- from July 15, 2016.
7 This is Exhibit 13 now.

8 - - -

9 (Michaels Exhibit 13 marked.)

10 - - -

11 BY MR. ROGERS:

12 Q. And that result is .6 micrograms per
13 deciliter, right?

14 A. Yes, that is in my table.

15 Q. And you describe that one as a venous
16 draw, but as you said, that would be based not on
17 anything in this report, but rather some other
18 medical record; is that right?

19 A. Yes, I -- yes.

20 Q. Okay. So just to make sure, then, I
21 believe that I've shown you all of the blood lead
22 level test reports that we're aware of for the
23 four bellwether plaintiffs, and based upon your
24 looking at your chart, Table 1 on Page 11, you're

1 not aware of any other ones in addition to what is
2 on that and what I have shown you, right?

3 A. Well, as I said, there was one report --
4 and I have a vague memory of this -- it was in a
5 transcript of a parent deposition that mentions a
6 blood test for lead that I don't have. I don't
7 remember which plaintiff it was, don't remember if
8 it's one of these four. But relying on my
9 memory -- I mean, that's why I record things in
10 painful detail, because I know that I can't
11 remember them and keep them straight.

12 Q. Let's go through --

13 MR. ROGERS: We don't need to share any
14 documents for a while, so maybe we could go for
15 another half an hour or so, take -- well,
16 40 minutes. We'll take a lunch break about 12:30.

17 Doctor, our standard practice has been
18 to take a lunch break of about half an hour. Is
19 that okay with you?

20 THE WITNESS: Sure.

21 BY MR. ROGERS:

22 Q. Just some background stuff -- and my
23 screen is not being shared now, is it?

24 A. I don't see your screen.

1 Q. All right. Good. Thank you.

2 So your understanding is that the
3 switchover from the Detroit water, Lake Huron
4 water, to the Flint River was on April 25th, 2014,
5 right?

6 A. Yes.

7 MR. LANCIOTTI: Object to form;
8 foundation.

9 MR. ROGERS: Patrick, what's the
10 wrong -- what -- I don't understand. Why are you
11 objecting to form and foundation on that one?
12 Isn't that kind of established?

13 MR. LANCIOTTI: It hasn't been
14 established in this deposition. I don't believe
15 you've asked that question to him before and you
16 haven't shown him any piece of his report where he
17 speaks about that.

18 MR. ROGERS: Well, I mean, what -- okay.
19 BY MR. ROGERS:

20 Q. You tell me, Dr. Michaels. What is your
21 understanding of when the switchover from Detroit
22 water to the Flint River occurred?

23 A. Your date of the 25th of April is
24 correct.

1 Q. And then when was the switchover back to
2 Lake Huron water from the Detroit water supply
3 from the Flint River?

4 A. As I recall, 16th of October in 2015.

5 Q. Thank you.

6 So to the extent that there were periods
7 of time when the plaintiffs -- the four bellwether
8 plaintiffs were not drinking tap water in between
9 April 2014 and October 2015, their exposure to
10 lead from the water would be not -- if there was
11 any, it would not be from the tap water, would it,
12 in their homes?

13 A. No, it might be.

14 Q. Okay. How --

15 MR. LANCIOTTI: Object to form.

16 Q. How so?

17 A. Well, if the plumbing in the house has
18 lead, it can have residues in the water.

19 Q. I know. But, I mean, if they're not
20 drinking it, whether there's lead from -- in the
21 water from pipes in the house or anywhere else,
22 you know, they're not exposed to it, right?

23 A. I'm sorry. I misunderstood your
24 question. Yes. If you're not exposed to it,

1 you're not exposed.

2 Q. All right. Thank you.

3 In your report, you did a -- you have
4 various sections where you have information about
5 the bellwethers' homes in the terms of -- in the
6 form of, I should say, photographs and you have
7 some parcel data and then you have maps that
8 show -- and sometimes Zoom -- not Zoom but Google
9 Earth-type photos that show where they were.

10 In addition to looking at the parcel
11 data and getting that information, did you do
12 anything else to research anything about the
13 construction of the homes, when they were
14 constructed and things like that?

15 A. No. I didn't do specific research
16 seeking that information, but I did read
17 information about some renovations of homes and
18 that sort of thing.

19 Q. All right.

20 A. Construction dates, all kinds of things
21 like that. So if they did appear in my screen of
22 view, I saw them, yes.

23 Q. So to your knowledge, were the
24 residences of the four bellwether plaintiffs all

1 built before 1986?

2 A. I'd have to look in the report. I don't
3 know.

4 Q. But the -- each of the reports, the
5 parcel data, does not appear to show for each one
6 of these the build date; is that right?

7 A. Hold on.

8 Well, I'm looking at the GPPPI BPPPI ,
9 and I don't see any build dates there. So I
10 assume that you're correct. I don't have the
11 build dates.

12 Q. Is 1986 a date of some significance in
13 the -- in terms of lead exposure and -- from a
14 toxicological perspective?

15 A. I'd have to look it up. I don't know.

16 Q. Oh. All right.

17 So did you in your work on the case
18 undertake an investigation to determine when the
19 houses were built in which the bellwether
20 plaintiffs lived?

21 A. No.

22 Q. From a toxicological -- I never say that
23 word correctly -- a toxicological point of view,
24 or in the science of toxicology, was there a

1 period of time in which lead that was in gasoline
2 was a significant contributor toward lead exposure
3 for children?

4 A. Yes, there was.

5 MR. LANCIOTTI: Object to form.

6 Q. And what period of time was that?

7 A. I don't recall. I do remember doing a
8 report that addressed that issue, but I don't
9 recall the dates.

10 Q. Do you remember when leaded gasoline was
11 banned in the United States or prohibited?

12 A. I remember when it was banned because I
13 was a kid. I think I remember it, but I don't
14 have any idea what the year was.

15 Q. Did you undertake any investigation or
16 evaluation to determine the extent to which lead
17 from gasoline contributed to any lead in the soil
18 in the areas where the bellwether children lived
19 so as to potentially be a source of their lead
20 exposure?

21 A. Did I investigate that? No.

22 Q. So in terms of the lead exposure for the
23 four bellwether children, if that -- the source of
24 that exposure was lead in the water, do you agree

1 that the children would have had to either drink
2 the water or eat food that was cooked in the water
3 to have that lead exposure?

4 A. No.

5 MR. LANCIOTTI: Object to form.

6 Q. Why is that not correct?

7 A. Well, it's not correct for multiple
8 reasons. It's not correct because they also
9 bathed in it and they breathe the steam in showers
10 with it. They wash dishes in it. They brush
11 their teeth with it. There are all kinds of
12 residential kinds of exposure. And in addition to
13 that, they could be exposed as well from tap water
14 in school, which is where a lot of the day is
15 spent. And so for those reasons and perhaps
16 others that I could come up with, it's a very
17 broad generalization that I can't agree with.

18 Q. Okay. Are there any scientific studies
19 that you're aware of that attempt to determine the
20 relative extents or the contributors between those
21 different sources for lead that you've just
22 described, that is, drinking water, cooking water,
23 versus the others that you've mentioned?

24 A. I believe that I've seen studies like

1 that, and I don't recall specifically what they
2 are, although I wouldn't be surprised to find them
3 cited in here.

4 But the issue of the plaintiffs in this
5 case is very specific to particular individuals
6 and where they live and what their lifestyle is.
7 These kinds of population averages are less
8 probative, in my view.

9 Q. Is the mechanism by which neurological
10 impairment in children who have been exposed to
11 lead that the lead actually gets into their
12 brains?

13 MR. LANCIOTTI: Object to form.

14 A. Yes, I would say that they -- that lead
15 can pass through the blood brain barrier.

16 Q. So can you explain from your perspective
17 as a toxicologist -- explain how someone like
18 these bellwether plaintiffs who, in your view,
19 were exposed to lead in the water and how that
20 ultimately could contribute to or exacerbate any
21 neurological issues that they have? Explain the
22 process by which that happens, please.

23 A. I don't think I can delve into the
24 mechanisms of action right now. I probably have

1 some references to it there, but I don't like to
2 shoot from the hip for that.

3 Q. Would that be, you know, something
4 beyond the level of your expertise as a
5 toxicologist to explain that? Is that more of an
6 issue for a medical doctor?

7 MR. LANCIOTTI: Object to form.

8 A. No, it's a very good issue for a
9 toxicologist.

10 Q. Okay. So why is it that you can't
11 explain it now?

12 A. Because I normally would look into
13 something like that. I don't have a memory of
14 every mechanism of action.

15 Q. Do you, as you sit here today
16 testifying, know the extent to which lead, if it
17 does get into someone's body, is excreted in the
18 body's waste products, that being urine or feces?

19 A. That's in the report. I believe it
20 differs from children to adults, but I would refer
21 you to the report for that. I don't have memory
22 of the specific numbers.

23 Q. Is it correct that about 58 percent,
24 approximately, of lead that gets into the body is

1 excreted and not absorbed?

2 MR. LANCIOTTI: Object to form;
3 foundation.

4 A. I would have to refer to the report to
5 make sure that that was the correct number. If
6 you tell me it's in the report, I would say it's
7 probably correct.

8 Q. In children, is it true that the large
9 majority of any lead that gets into their bodies
10 is stored in the bones in the order of 85 to
11 90 percent?

12 A. I don't know what the numbers are.

13 MR. LANCIOTTI: Object to form and
14 foundation.

15 A. I don't know what the numbers are, and I
16 actually don't know what you mean by that either.
17 Because being stored in the bones is a very
18 temporary condition, especially with regard to
19 children whose bones are growing and their bones
20 are constantly reforming themselves. And so
21 substances that are in bones stably for adults
22 are not stable for children, and they can exchange
23 back and forth between the blood and, therefore,
24 to all of the places where lead may exert its

1 activity in the body.

2 Q. You mentioned that in order to get into
3 the brain, the lead would have to pass through the
4 blood brain barrier.

5 Can you explain that in any further
6 detail at this point?

7 A. Well, it's an evolutionary adaptation of
8 the brain to exclude toxins from the brain. And
9 it gets better and better as you grow older. I
10 don't know how it is in old age, but it certainly
11 gets better as you reach maturity.

12 In children, it's very rudimentary, and,
13 therefore, children can have central nervous
14 system effects of lead, whereas adults might have
15 peripheral nervous system effects of lead with the
16 same level of exposure. So they are excluding the
17 lead from their brains, whereas the children are
18 not.

19 Now, if you're asking the specific
20 molecular mechanisms, I won't be able to answer
21 that right now.

22 Q. Okay. Tell me if this is a correct
23 statement, that in order for lead to accumulate in
24 the brain at sufficient levels to induce or cause

1 some type of neurological effect, the lead must
2 first be absorbed by the gastrointestinal tract,
3 distributed to the central nervous system, and
4 then compete with calcium for uptake across the
5 blood brain barrier.

6 Is that a correct statement?

7 MR. LANCIOTTI: Object to form;
8 foundation.

9 A. It might be. I don't know what your
10 source of that information is.

11 Q. Is there some minimum amount of lead
12 exposure that's necessary for there to be levels
13 to accumulate in the brain so as to cause
14 neurological effects?

15 A. No such level has been recognized, as
16 far as I know.

17 Q. Is there any scientific evidence as to
18 how many molecules of lead the typical child is
19 exposed to every day?

20 A. It would not surprise me if that number
21 were out there someplace. I have no idea what it
22 is. And it would vary geographically and by many
23 other factors.

24 Q. Could you turn to Page 103 of your

1 report. And I'll go ahead and put this up on the
2 screen as well, but just to get started, can you
3 go to Page 103?

4 A. Yes, I have that page.

5 Q. I think you might have started to talk
6 about this earlier in terms of a dose response in
7 some answers to some of my earlier questions. But
8 explain to me, please, what is this one-hit model
9 that you are describing? And if you'd like, take
10 the time to read it to get yourself reacquainted
11 with it. But explain to me what this one-hit
12 model is that you're referring to on this
13 paragraph that I have some highlights in here.

14 MR. LANCIOTTI: Dave, I don't believe
15 you're sharing your screen. I don't know if you
16 were intending on it or not.

17 MR. ROGERS: I was, of course. Sorry
18 about that. Let me do that. Thanks.

19 How is that? Do you see it now?

20 MR. LANCIOTTI: Yes. Thank you.

21 A. So your question is what is the meaning
22 of a one-hit model? It means one molecule being
23 sufficient to cause an adverse effect.

24 Q. How does it relate to your opinions

1 about lead in this case?

2 A. Well, as I've discussed it, I've put it
3 in context, but I don't think it particularly
4 influences my opinion.

5 Q. Well, you say here on this Page 103,
6 "The one-hit model in such extrapolations may
7 produce the highest risk and, therefore, may be
8 the most conservative." It might or might not be
9 the most accurate, you know. "In the case of
10 ubiquitous contaminants such as lead, body burden
11 may be assumed to exist already."

12 Why is it that you mention it in your
13 report? I don't really -- I'm not following it if
14 it's not pertinent to your opinions.

15 A. I didn't say that it's not pertinent to
16 my opinions. I think it's very pertinent to my
17 opinion. In fact, it justifies the opinion that
18 any additional or incremental exposure to lead is
19 significant.

20 Q. Is -- can you direct me to any
21 scientific studies by any scientist who agrees or
22 has the opinion that one molecule of lead can
23 cause any lead-related disease or ailments?

24 A. I can't specifically refer you to

1 anybody like that. I certainly would not say
2 that. I did not say that, and I don't think that.
3 But, of course, if you're talking about the
4 one-hit model, that's what the one-hit model is
5 about.

6 Q. Okay.

7 A. The extremely conservative assumption
8 that one molecule can do it. It's not something
9 you can find. In fact, they have a figure of a
10 dose-response curve in which I figuratively call
11 the levels below which you can do experiments on
12 the twilight zone because it's a zone where you
13 can't really discern this kind of information. If
14 one molecule of lead was causing an effect, you
15 wouldn't know it because you don't do experiments
16 with that.

17 Q. So that is this graph that is in
18 Figure 15, a generic dose-response curve in
19 toxicological health risk assessment, on the next
20 page of your report, 104, right?

21 A. Yes, that's correct.

22 Q. Okay. So I think I understand now.

23 You don't subscribe to the one-hit
24 molecule theory, at least in terms of a

1 professional scientific opinion. You were just
2 describing that it exists, right?

3 A. No, that is not correct. In fact --

4 Q. Go ahead. Explain it to me.

5 A. -- what I said is that with respect --
6 sorry?

7 Q. I was just saying, go ahead and explain
8 it to me.

9 A. With respect to cancer, the one-hit
10 model has a much more firm basis. Cancer tends to
11 be a little more tenuous that way. Nobody really
12 knows if one molecule can do it. And it's a
13 statistical problem because there are -- because
14 if a cancer molecule hits, a DNA -- I'm sorry. If
15 a carcinogenic substance molecule hits, a DNA
16 molecule, and thereby causes cancer, there are
17 mechanisms of correcting genetic misinformation,
18 mutations. And so -- so you'd have to have the
19 one hit also followed by the failure of the DNA
20 repair mechanisms to repair the molecule.

21 You also would have to have a situation
22 where the one molecule to which the individual was
23 exposed actually winds up at the DNA molecule and
24 actually hits it with enough force to create that

1 mutation.

2 So as a statistical problem, it's not
3 likely. As a matter of principle, it can happen.
4 In the case of something like a noncancer effect
5 which does not necessarily involve a specific DNA
6 molecule and mutation, that's a little more
7 difficult to imagine. But I'm presenting it in
8 the proper context here, and by way of having a
9 balanced view, I'm giving the idea that this is
10 not a critical issue in the case of lead because,
11 as I've said before, we're all exposed to lead.
12 We have those molecules already. We don't have to
13 have one molecule to do its deed. We already have
14 molecules that are in our body.

15 Q. Let me show you -- in order to keep the
16 exhibits in order -- yeah, I better -- let me do
17 this so we can just be clear here. I just want to
18 ask you if you looked at this particular source as
19 part of your research in the case, and I'll share
20 my screen now. It's Exhibit 14.

21 - - -

22 (Michaels Exhibit 14 marked.)

23 - - -

24

1 BY MR. ROGERS:

2 Q. This publication, the Fourth National
3 Report on Human Exposure to Environmental
4 Chemicals, Updated Tables, January 2019,
5 Volume One.

6 Did you review this source for
7 information about blood lead levels or lead
8 exposure at all?

9 A. You are not showing me the source. I
10 don't know who wrote that. I don't recall citing
11 it. But if I did cite it -- okay. If I looked at
12 it, it would be in the "Literature Cited" section.

13 Q. Okay. You can see the citation there,
14 it's the U.S. Department of Health and Human
15 Services, the Centers for Disease Control and
16 Prevention, and it is based on NHANES data.

17 Did you look at that?

18 A. I'm looking to see if I cited it. If I
19 didn't cite it, I didn't look at it.

20 It looks to me from a perusal of my
21 citation section that I did not use this as a
22 source.

23 MR. ROGERS: All right. It's about
24 12:15. Why don't I take a look -- let's take our

1 lunch break now and come back at 12:45. I may
2 reorder my exhibits a little bit here going
3 forward. So let's do that.

4 Off the record. We'll come back at
5 12:45.

6 VIDEOGRAPHER: The time is 12:14 p.m.,
7 and we're off the record.

8 - - -

9 Thereupon, the luncheon recess
10 was taken at 12:14 p.m.

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1 NOVEMBER 12, 2020

2 THURSDAY AFTERNOON SESSION

3 12:47 P.M.

4 - - -

5 VIDEOGRAPHER: The time is 12:47 p.m.,
6 and we're on the record.

7 BY MR. ROGERS:

8 Q. Okay. Dr. Michaels, let's take a look
9 at the next exhibit that I wanted to show to you.
10 It is some excerpts from a deposition of
11 Dr. Graziano.

12 MR. ROGERS: We'll make this Exhibit 19.

13 Sara, I'm going to skip over a couple
14 exhibits; we might get back to them. But in order
15 to keep organized here, I'm going to stick to the
16 numbering system that I already have in place. So
17 eventually if we don't get to them, that's okay.
18 But we'll just call this one Exhibit 19. Okay?

19 - - -

20 (Michaels Exhibit 19 marked.)

21 - - -

22 BY MR. ROGERS:

23 Q. So I think you said, Dr. Michaels, you
24 haven't had a chance to review this yet, but I'm

1 going to ask you if you agree with some of the
2 testimony here from Dr. Graziano.

3 He was asked, "Doctor, do you agree that
4 every child" -- can you see this okay?

5 A. I do, yes.

6 Q. All right. Thanks.

7 He says -- the question was: "Doctor,
8 do you agree that every child in America has some
9 lead in their body?"

10 His answer was: "Yes."

11 You agree with that, right?

12 A. Yes, I do.

13 Q. Thank you.

14 And then the question was: "And you
15 agree the same is true for the children of Flint
16 before the water switchover, right?"

17 And Mr. Lanciotti objected and then
18 there was a repeat of the question just read back,
19 and he says -- Dr. Graziano says: "I agree."

20 Do you agree with that?

21 A. Yes.

22 Q. Thanks.

23 And then the next question was: "Would
24 the lead that the children in Flint had in their

1 bodies before the switch occurred in April of 2014
2 have adverse affected those children?"

3 I think it probably should be "adversely
4 affected."

5 And the answer was: "Yes."

6 Do you agree with that?

7 A. Yes, I do.

8 Q. All right. Thanks. We'll close out of
9 that one.

10 The next -- I have some questions about
11 some other papers -- scientific papers and
12 studies. And during the break, I went to your
13 list of -- let me see exactly what you call it --
14 "Literature Cited" -- on Page 127 of your report
15 going through Page 139. So if you want to keep
16 that handy, because I will ask you if you have
17 looked at and reviewed or considered these papers
18 that I'm going to show you now. And I think when
19 I asked you that before, you said, "Well, I'd have
20 to look at my list of the literature."

21 So is it correct that the materials and
22 literature that you reviewed and cited in your
23 report are contained on Pages 127 through 139 of
24 your report?

1 A. Yes, it is.

2 Q. And the scientific literature you list
3 by the authors -- the principal author's first
4 name and in alphabetical order. So I just say
5 that because when I ask you the question, if
6 you've reviewed this paper for purposes of your
7 work on the case, you may -- that may be helpful.

8 So the first one I want to ask you about
9 is this Exhibit 20.

10 - - -

11 (Michaels Exhibit 20 marked.)

12 - - -

13 BY MR. ROGERS:

14 Q. The lead author is Dr. Gomez, "Analysis
15 of blood lead levels of young children in Flint,
16 Michigan before and during the 18-month switch to
17 the Flint River water."

18 Is this a study that you reviewed and
19 considered in your work on the case?

20 A. Apparently not. I don't see it in the
21 "Literature Cited" section.

22 Q. I'll shrink it down a little so you can
23 see it.

24 It not being in the list of materials,

1 if you are looking at the title and you're looking
2 at the paper here, is that -- do you remember
3 having reviewed this scientific paper and study in
4 "Clinical Toxicology" at all?

5 A. No, I don't recall.

6 Q. Would this be a subject matter that's
7 pertinent to any of the opinions that you have in
8 this case, namely, an analysis of blood lead
9 levels of young children in Flint, Michigan before
10 and during the 18-month switch to Flint River
11 water?

12 MR. LANCIOTTI: Object to the form.

13 A. If you're asking if it's relevant, yes,
14 I think it is relevant.

15 Q. Is there some reason that you didn't
16 find this paper and read it as part of your work
17 in the case?

18 A. I'm sure there are reasons. I didn't
19 find it. That's all I can say.

20 Q. Okay. Well, the authors here say in the
21 abstract, "The objective of the study is to
22 evaluate whether blood lead levels in Flint
23 children were increased during the entire 18-month
24 Flint River water exposure compared to similar

1 earlier time periods," right?

2 Do you see that?

3 A. I do, yeah.

4 Q. And then he says, the methods, "We
5 conducted a retrospective study analyzing blood
6 lead levels from Flint children aged 5 years and
7 under. The geometric mean and percentages of
8 blood leads greater than 5 were measured in
9 different periods."

10 Do you see that?

11 A. I do.

12 Q. Okay. So do you know Dr. Gomez? It
13 says that he's associated with the Department of
14 Emergency Medicine at the University of
15 Michigan-Ann Arbor.

16 A. No, I don't know him.

17 Q. All right. I'm going to close this out
18 and ask you the same question about this other
19 Gomez study that is Exhibit 18, "Analysis of blood
20 lead levels of young children in Flint, Michigan
21 before and during the 18-month switch over to the
22 Flint River water" that was published in "Clinical
23 Toxicology" in 2019.

24

- - -

1 (Michaels Exhibit 18 marked.)

2 - - -

3 BY MR. ROGERS:

4 Q. Have you reviewed that paper?

5 A. Apparently not.

6 Q. The conclusion reached here by the
7 authors was, as I'm showing you now, "Analyses of
8 GM" -- do you understand that to mean geometric
9 mean?

10 A. Yes.

11 Q. -- "and percentages of greater than or
12 equal to 5 micrograms per deciliter of BLLs do not
13 support the occurrence of a global increase in
14 BLLs in young children of Flint during the entire
15 18-month period of the Flint River water
16 exposure."

17 Do you see that?

18 A. I do.

19 Q. Do you have any reason to disagree with
20 that conclusion of these authors based on their
21 study?

22 MR. LANCIOTTI: Object to form;
23 foundation.

24 A. I haven't read the studies, and so,

1 therefore, I don't have a strong basis to
2 disagree, except to say that I've been very
3 skeptical of the sporadic testing of blood lead
4 levels of these children. And in addition to the
5 sporadic aspect, the fact that methods of testing
6 were very crude with levels of detection at
7 3.3 micrograms per deciliter, which is not and was
8 not state of the art during the time, and that as
9 you looked at the positive results that were
10 reported for bellwether plaintiffs, those numbers
11 in the range of, say, 2 or 2.5 micrograms per
12 deciliter would have been basically zero by those
13 crude methods because they didn't reach that level
14 of sensitivity.

15 The other thing that I would say is a
16 lot of these kids have sought treatment, and,
17 therefore, the fact that there is a decline may
18 reflect, to some extent, the success of treatment.

19 So I don't know where to place these
20 studies in my own brain right now. I have not
21 reviewed the studies, and I can't -- I can't be
22 definitive about what their significance is.

23 Q. The authors say here on this Page 4 of
24 8 in the report in the discussion that I have

1 highlighted, "Contrary to previous investigations
2 focused on examining defined samples of time
3 during the Flint River water switch, we found that
4 geometric mean blood lead levels in young Flint
5 children actually decreased during the 18-month
6 water switch period compared to identical previous
7 time periods when controlling for length of time,
8 seasons, and months."

9 Do you have any reason to disagree with
10 that conclusion?

11 MR. LANCIOTTI: Object to form;
12 foundation.

13 A. First of all, that's not represented as
14 a conclusion. It is represented as a finding.
15 Now, a finding and a conclusion are two different
16 things in scientific studies. When you find that
17 something is decreased, you don't necessary --
18 necessarily conclude that it has decreased. It
19 may have not decreased. It may have increased.
20 But the fact is that as a basis for the question,
21 I don't see that they are concluding that.

22 Q. Okay. I'll show you this section which
23 is labeled "Conclusions." The highlighted section
24 says "The exposure of young children to Flint

1 River water from 25 April 2014 to 15 October 2015
2 in Flint coincided with a decrease in BLLs, blood
3 lead levels, in young children when compared to
4 prior time periods controlling for the time-length
5 studied, months, and seasons."

6 That's a conclusion; that's what they
7 call it, right?

8 A. Yes, they do.

9 Q. So do you have any reason to disagree
10 with that conclusion of these authors?

11 MR. LANCIOTTI: Object to form and
12 foundation.

13 A. I have to read it first. I don't know
14 anything about what they mean by controlling for
15 time-length studied, months, and seasons. I don't
16 know what that means. I don't -- I don't -- I
17 don't know how to interpret this study.

18 Q. All right. You did, however -- sorry.
19 Did you want to add something?

20 A. Well, yeah. You're showing me two
21 studies. The first study doesn't say quite the
22 same thing. It says that the increase that they
23 observed was not statistically significant. It
24 doesn't mean that it didn't increase.

1 So I don't, again, know how to interpret
2 these studies, and it requires a certain amount of
3 time to look into that.

4 Q. Isn't the issue of whether or not the
5 blood lead -- measured blood lead levels of
6 children in Flint during the period of time of the
7 water switchover an important fact for you to know
8 and consider in coming to your opinions and
9 conclusions as a toxicologist in the case?

10 MR. LANCIOTTI: Object to form.

11 A. I don't think I picked up your meaning
12 there. Could you repeat that question?

13 Q. Yeah.

14 Isn't -- isn't the fact of whether or
15 not blood lead levels were decreasing during the
16 period of time when the water switchover occurred
17 for children in Flint -- isn't that an important
18 fact for you to know about in terms of the
19 opinions that you were providing as a toxicologist
20 in the case?

21 MR. LANCIOTTI: Object to form.

22 A. Yeah. Well, if your premise is that the
23 numbers were decreasing, I don't accept that. I
24 don't know that they've been decreasing. If you

1 are suggesting that you've substituted one source
2 of lead for another, from a toxicological point of
3 view, the children's bodies don't mind which
4 source. They will still respond to it. From a
5 legal point of view, I imagine that the lawyers
6 could work out who is responsible for it when the
7 origin of the lead has changed. That's not my
8 issue.

9 So if you're asking generically whether
10 something is important, I can imagine ways that it
11 would be important, yes.

12 Q. What would those ways be?

13 A. Well, as I've mentioned, the legal
14 aspects might change because there's a different
15 source of the lead, and quantifying the exposure
16 might be -- you know, that the exposure levels may
17 have been different. I don't know.

18 Q. But didn't you reach a conclusion and
19 don't you hold an opinion that the children in
20 Flint, including the bellwether plaintiffs,
21 experienced an increase in their exposure to lead
22 during the water switchover?

23 A. I believe that I reported that finding
24 of Hanna-Attisha, yes.

1 Q. Okay.

2 A. And I considered that to be significant
3 and important, yes.

4 Q. In terms of the lead exposure from the
5 changeover in water as opposed to other sources,
6 right?

7 A. Well, I think -- I think that, as I've
8 always said, there are multiple sources and
9 exposures that predate the use of the Flint River
10 and that all molecules of lead are potentially
11 significant to children exposed to them. So I
12 have tried to keep out of the politics of this.
13 If somebody were to show that the Flint River
14 water use was a great thing for the kids, I would
15 have to question why they went back to the old
16 source. But if somebody were to show that, that's
17 great, and it's maybe like giving them vitamins or
18 something. I -- as I said, I haven't read these
19 papers; and if you're asking generically, does the
20 source of lead matter, yes, I think that's
21 important.

22 Q. Right.

23 But what I'm saying is you relied on the
24 Dr. Mona Hanna-Attisha papers, which report

1 increases in blood lead levels for periods of time
2 related to the water switchover in terms of, you
3 know, the amounts that are recorded of greater
4 than 5 micrograms per deciliter. But if, in
5 fact -- or you rely on that for purposes of your
6 opinions to conclude that the water was the source
7 of the increased lead in their blood, right?

8 A. No, that's not right. I said that the
9 kids have multiple sources, and that after the
10 switchover, there was a spike related
11 geographically to where the sample was taken and
12 what the water levels were in those areas, a spike
13 in the blood lead levels of the children.

14 What I relied on is much beyond what
15 you're referring to. Of course, I did talk about
16 those studies, but I primarily relied on the blood
17 lead reports and the bone lead reports and, you
18 know, the information I had that they were exposed
19 at their homes and at their schools. You're
20 raising a different issue of whether those numbers
21 went up or down, and I can imagine that that's
22 important, yes.

23 Q. Yes.

24 So if, in fact, the blood lead levels

1 for the children that were measured in Flint went
2 down during the period of time of the water
3 switchover, that would be an important thing for
4 you to consider, wouldn't it?

5 MR. LANCIOTTI: Object to form.

6 A. You know something? The answer to that
7 question is basically no, it would not. The issue
8 that I'm facing when I evaluate this is what
9 happened to the four kids. Did their blood levels
10 go up or stay the same, or what has happened to
11 their blood and what has happened to their bone.
12 And I have concluded that they were exposed to
13 lead and that some of that exposure, and perhaps a
14 predominant amount of that exposure, came from the
15 use of Flint River water.

16 Now, if there's a population-level trend
17 that you can point to, these kids could be bucking
18 that trend or not. I don't know. And you're
19 asking me a lot of questions about studies that I
20 have not seen. And so I won't let you put words
21 in my mouth, but I'm answering as completely as I
22 can.

23 Q. In terms of determining whether these
24 particular four children experienced an increase

1 in the amount of lead that they were exposed to
2 from the water as a result of the water
3 switchover, what steps -- what analyses did you go
4 through in order to determine that from a
5 toxicological point of view?

6 A. Well, my analysis was a qualitative
7 analysis, not a quantitative analysis. And what I
8 had discovered in that is that these kids were
9 exposed to Flint River water and to the lead
10 produced by Flint River water while flowing
11 through the various types of pipes.

12 The question that you're raising now as
13 a premise of your question of whether that number
14 increased or decreased, which may be a
15 population-level question, I have not primarily
16 addressed that problem.

17 Q. Similarly, with respect to the four
18 bellwethers, you have not done any calculations or
19 analyses to determine in terms of quantity the
20 additional amount of lead that they are exposed to
21 because of the water switchover, correct? These
22 four bellwethers, I mean.

23 A. Have I quantified it? No.

24 Q. Because you used the term

1 "qualitatively," I wanted to make sure that I
2 understood what you meant.

3 In terms of the quantity, or that is,
4 the amount that each of these children were
5 exposed to during the period of time of the water
6 switchover, you -- just to be clear, you haven't
7 attempted to quantify that, right?

8 A. Well, I certainly haven't quantified it.
9 I probably started off hoping that I could, but I
10 wasn't able to.

11 Q. Why not?

12 A. Well, the data were very sporadic. I
13 mean, the depositions of bellwether parents, and
14 they don't remember when they stopped drinking the
15 water, or they don't remember when they started
16 drinking bottle water, and they don't remember --
17 they don't know how much kids drank from garden
18 hoses or how much they drank from the tap or
19 whether there was a filter in place and whether
20 the filter was exchanged frequently enough, or how
21 often they were at a grandparent's house, or how
22 often they were at a friend's house, or what was
23 the -- how much water did the kid drink in school.

24 There's a lot of factors that go into a

1 quantitative risk assessment that I didn't have to
2 quantify with.

3 Q. And, similarly, to the extent that their
4 exposure to other sources of lead, that in paint,
5 dust, soil, in terms of a quantitative analysis,
6 you did not undertake that, did you?

7 A. No, I did not undertake it. And I've
8 tried -- I've tried to be complete in my
9 understanding -- in conveying my understanding
10 that there are multiple exposure sources.

11 Q. Yep. I've got it.

12 In terms of time periods, I just want to
13 direct your attention to this time period, in
14 terms of quantification, that is, the quantity, an
15 attempt to evaluate the quantity of lead exposure
16 from the water at various points in time.

17 You have not attempted to determine the
18 extent to which the amounts of lead that these
19 four bellwethers were exposed to occurred from the
20 time of the switchover through the end of the year
21 2014, and then from that point beyond, have you?

22 MR. LANCIOTTI: Object to form.

23 A. You know, it's an interesting question
24 that you ask. It's a lawyer's question, really.

1 And by that, I mean that when a child is exposed
2 to lead, the child stores a certain amount of that
3 lead. And the child is exposed to that lead by
4 the circulation of the lead from the places where
5 it's stored to the rest of the body, potentially
6 for years after the exposure has occurred.
7 Exposure to lead isn't something that starts on
8 Monday and ends on Friday. It's something that
9 goes on for a long period of time and, you know,
10 can be affected by diet, by other health
11 conditions, by, as I've said, socioeconomic status
12 and, basically, habits. There are all kinds of
13 factors that affect this process.

14 A better indicator might be the bone
15 lead, which indicates very long -- much
16 longer-term exposure, and I would say very
17 significant longer-term exposure. So if you're
18 just looking at the blood lead levels, I think
19 that's a rather narrow focus, and certainly those
20 two papers where you were referring to that, I'm
21 not saying the investigator shouldn't investigate
22 that, but what I am saying is that there are other
23 factors involved.

24 Q. Maybe you didn't understand my question.

1 I'm just asking whether you, in your work on the
2 case, attempted to evaluate the quantity -- from a
3 quantitative point of view the amount of
4 additional lead that the children were exposed to
5 because of the water switchover from the time of
6 the water switchover through the end of the
7 calendar year 2014, compared to the amount of lead
8 that they would have been exposed to from a
9 quantitative -- additional amounts that they would
10 have been exposed to from water -- lead in the
11 water from January 1st, 2015 to the time that the
12 water supply was switched back to Lake Huron.

13 A. I think that you --

14 MR. LANCIOTTI: Object to form; and
15 asked and answered.

16 A. I think that you are misunderstanding my
17 answer to that question, which is to say that the
18 question itself is flawed, because the exposure
19 that occurred after that period of time is a
20 continuation of exposure that was initiated during
21 that period of time.

22 Q. Do you know how much for any of the
23 individual bellwether plaintiffs their exposure to
24 lead from the water increased from January 1st,

1 2015 through the period of time when the
2 switchover back to the Lake Huron water occurred?

3 MR. LANCIOTTI: Object to form.

4 A. I don't know the specific number. No, I
5 don't have that number.

6 Q. Similarly, same question with respect to
7 the quantities. The additional amount of lead
8 that they were exposed to from the date of the
9 switchover in April 2014 through December 31st,
10 2014?

11 A. I'm sorry. What was the difference --

12 MR. LANCIOTTI: Object to form.

13 A. -- between the two questions?

14 Q. The timing, sir.

15 A. Well, maybe you better review that with
16 me again because I thought that was what we were
17 talking about.

18 Q. Let's try it again.

19 Do you know the additional amount of
20 lead that the children were exposed to from the
21 water for this period of time, April 25th, 2014
22 through December 31st, 2014?

23 MR. LANCIOTTI: Object to form.

24 A. From what dates?

1 Q. Are you having trouble hearing me,
2 Dr. Michaels, or you just forgot the dates?

3 A. I forgot the dates. I have no problem
4 hearing you.

5 Q. Good.

6 The first date is April 25th, 2014. The
7 second date is December 31st, 2014.

8 A. I don't know that number.

9 Q. My next question refers to this time
10 period, January 1st, 2015 until October 16th,
11 2015, when the water supply was switched back to
12 Lake Huron. Same question: Did you quantify or
13 do you know the additional amount of lead that
14 these four bellwether children were exposed to
15 during that time frame?

16 A. No.

17 MR. LANCIOTTI: Object to form; asked
18 and answered.

19 Q. Did you undertake to determine in terms
20 of a quantitative analysis the amount of lead --
21 the additional amount of lead from the water that
22 occurred from the point in time when the water
23 switchover took place to the Flint River up until
24 the time that these individual families and the

1 children for the four bellwethers stopped drinking
2 the water?

3 A. I did not quantify that, no.

4 Q. And did you then attempt to quantify the
5 amount of lead that they were exposed to from the
6 point in time in which they stopped drinking the
7 water from their taps in their homes through the
8 period of time when the water switchover back to
9 Lake Huron occurred in October of 2015?

10 A. I'm sorry. I have to ask you to repeat
11 the question.

12 Q. The question is: Did you attempt to
13 quantify the additional amount of lead that these
14 children were exposed to from the point in time at
15 which they stopped drinking the tap water,
16 whenever that date was for the individual families
17 and their children, through October of 2015, when
18 the water was switched -- the source of the water
19 was switched back to Lake Huron?

20 MR. LANCIOTTI: Object to form.

21 A. I did not quantify the number of -- that
22 particular number. I did try to take that into
23 account by looking at the number of days that
24 might have been involved of exposure residentially

1 and of exposure in school. And so, you know,
2 there was -- to some extent, I did try to consider
3 that, but I didn't have the data to quantify it.

4 Q. In what sense did you consider it, and
5 what were your conclusions?

6 A. Well, my findings were that there were a
7 certain number of days that they were potentially
8 exposed residentially, and that that number of
9 days was reduced, based on the depositions of the
10 parents, when they stopped using the water. And
11 then there were certain kinds of exposure that
12 stopped at different points in time, if they
13 stopped drinking the water, or they started to
14 filter the water, or they stopped showering or
15 washing dishes or brushing their teeth. I tried
16 to look into all of those factors. It just got
17 too complex.

18 Q. Okay. I see.

19 So you -- in your analysis, you have a
20 start time of the water switchover of April 25th,
21 2014, and you did attempt to determine the period
22 of exposure, at least through drinking the tap
23 water in their residences, up until the point in
24 time at which they stopped doing so, right?

1 A. Yeah. To the extent that that's
2 reported in there, yes, that is correct.

3 Q. Okay. I think we'll get to that when we
4 get into the specifics of some of your reports.

5 You do recognize or you do acknowledge
6 that, you know, that period of time -- or never
7 mind. Strike that.

8 I'm going to show you the
9 Dr. Hanna-Attisha study.

10 MR. ROGERS: This is now exhibit -- will
11 be Exhibit 22.

12 - - -

13 (Michaels Exhibit 22 marked.)

14 - - -

15 BY MR. ROGERS:

16 Q. Is this the study that you referred to
17 and that you reviewed? I'll shrink it down a
18 little bit so you can see it -- as part of the
19 scientific research that you did for the case?

20 A. Yes.

21 Q. So this is the one that you have listed
22 on Page 133 of your list of papers that you
23 reviewed. Just making sure that that's the
24 correct one.

1 Okay. Did you -- yeah. Did you -- you
2 didn't review or rely upon any other papers by
3 Dr. Hanna-Attisha besides this one, right?

4 A. Not where she was the first author. I
5 don't know if she was in corporate-authored papers
6 that I did cite, but I don't recall her being.

7 Q. All right. Thank you.

8 And you didn't review her deposition
9 transcript in the case, right?

10 A. Right.

11

12 (Michaels Exhibit 23 marked.)

13

14 BY MR. ROGERS:

15 Q. I'm going to show you Exhibit 23, a
16 paper from some time ago, 1965, by an author named
17 Julian Chisolm, Jr. I don't believe that this is
18 listed as one of the papers that you reviewed in
19 the case; is that right?

20 A. Yes.

21 Q. And in this paper, Dr. Chisolm found
22 that in terms of blood lead levels, in terms of
23 micrograms per -- wait a minute. Let me just
24 check this. Hold on.

1 That the median levels here during this
2 period of time from age 0 to 6 months up through
3 adults had a median value -- can you see that all
4 right -- from 15 up to 27.

5 Do you see that?

6 A. Yes, I do.

7 Q. So is -- that would be higher -- these
8 numbers would be higher than the median levels --
9 median blood lead levels that you would expect for
10 children in Flint during the period of time we're
11 concerned about, 2014-15, right?

12 MR. LANCIOTTI: Object to form.

13 A. It does look like they're higher.

14 Q. All right. Did you by any chance ever
15 have any -- do you mind if I ask, how old are you,
16 sir? Are you about 75 or so?

17 A. 74.

18 Q. 74. Okay. I was very close.

19 Have you ever reviewed studies like this
20 one -- or have you reviewed as part of your work
21 in this case studies like this one, or similar to
22 this one, for periods of time in the 1960s or the
23 1970s to determine how the mean or average blood
24 lead levels of various populations of children

1 compared to the levels that were reported in Flint
2 during 2014-15?

3 A. I don't recall citing -- or reviewing
4 any of those types of studies, no.

5 Q. If, in fact, though, studies exist that
6 show in the 1960s and '70s, and even early '80s --
7 or the '80s and '90s, that the mean blood lead
8 levels were higher in young children in various
9 populations, what does that mean from a
10 toxicological perspective about whether they had
11 sustained any damage or impairments due to
12 exposure to lead?

13 A. Well, it means that they probably did
14 experience damage as a result of that exposure.

15 Q. Okay. Let's go to the next one, which
16 is Exhibit 24.

17 - - -

18 (Michaels Exhibit 24 marked.)

19 - - -

20 BY MR. ROGERS:

21 Q. I don't believe that you have referred
22 to this paper in your list, but you can check if
23 you'd like just to be sure.

24 There were two papers from Roy and

1 Edwards as the coauthors. You certainly know who
2 Dr. Marc Edwards is, right?

3 A. Not offhand, no.

4 Q. Oh, okay. So Dr. Marc Edwards is a
5 professor from Virginia Tech, as is Professor Roy,
6 the coauthors of this report, who did water lead
7 level testing in Flint at various points in time
8 during the Flint water situation.

9 Have you not read any of the studies or
10 reports by Dr. Edwards concerning those subject
11 matters?

12 A. I believe not.

13 Q. Well, I guess, then I won't ask you a
14 lot of questions about them.

15 So you -- this paper -- you're not
16 familiar with Dr. Edwards' paper and any of the
17 conclusions or opinions that he relates in it, or
18 findings that he relates in it, lead released to
19 potable water during the Flint, Michigan water
20 crisis as revealed by routine biosolids monitoring
21 data? You just don't know anything about it,
22 right?

23 A. That's correct.

24 Q. I'll show you the next one, Exhibit 25.

1 - - -

2 (Michaels Exhibit 25 marked.)

3 - - -

4 BY MR. ROGERS:

5 Q. Another paper by Edwards entitled
6 "Efficacy of Corrosion Control and Pipe
7 Replacement in Reducing Citywide Lead Exposure
8 During the Flint, Michigan Water System Recovery."

9 You have not read this paper either,
10 Doctor?

11 A. No, I have not.

12 MR. ROGERS: Next exhibit I would like
13 to mark is Exhibit 26.

14 - - -

15 (Michaels Exhibit 26 marked.)

16 - - -

17 BY MR. ROGERS:

18 Q. This is a paper that I believe you have
19 cited in your work and that you have reviewed by
20 Dr. Lanphear. It's entitled "Low-level
21 Environmental Lead Exposure and Children's
22 Intellectual Function: An International Pooled
23 Analysis."

24 You've reviewed this one, right?

1 A. I did, yes.

2 Q. Let's just make sure that's the one that
3 you've cited here in your paper because
4 Dr. Lanphear has a couple of different
5 publications.

6 Yeah, this is the one that you cite from
7 Environmental Health Perspectives 2005. Right.
8 That is the one that appears on Page 134 of your
9 report.

10 So what -- what is important to you in
11 terms of your opinions from this Lanphear report?

12 A. I reviewed a lot of reports. I can't
13 keep them straight offhand. I'd have to review it
14 again and look again at the -- you can see what
15 the citation -- the in-text citation says, and
16 that's what I relied on for the information there.

17 Q. Well, as you sit here today, you can't
18 remember what it is that's important about this
19 paper to any of the opinions that you hold in the
20 case?

21 A. Right here, I can't remember, no.

22 - - -

23 (Michaels Exhibit 27 marked.)

24 - - -

1 BY MR. ROGERS:

2 Q. I'm going to show you Exhibit 27. It's
3 a paper by -- lead author is Crump, "A Statistical
4 Re-evaluation of the Data Used in the Lanphear
5 Pooled Analysis."

6 And I don't believe you have read or
7 referred to this scientific paper; is that
8 correct?

9 A. Right, yes.

10 Q. So to the extent to which the author
11 here, Crump, did an evaluation of Dr. Lanphear's
12 earlier study that is described in this paper,
13 you're just not familiar with that, are you?

14 A. Not familiar with the paper, no.

15 - - -

16 (Michaels Exhibit 28 marked.)

17 - - -

18 BY MR. ROGERS:

19 Q. Marked as Exhibit 28, the paper by
20 Dr. Lanphear that is an erratum, or -- I don't
21 know what erratum technically means -- but a
22 correction to some information in his previous
23 paper.

24 I don't believe you've referenced this

1 in your scientific literature papers that you
2 relied upon; is that right?

3 A. Yes, that's correct.

4 Q. So whatever Dr. Lanphear says where he's
5 correcting some of the information from his prior
6 report, you don't know what that is, do you?

7 A. Not offhand, no.

8 Q. You have a number of citations in your
9 report to something called the ATSDR.

10 What does that -- what's the acronym
11 stand for, and what is that all about?

12 A. The Agency for Toxic Substances and
13 Disease Registry. It's part of the CDC, Centers
14 for Disease Control. And it is a very important
15 source of information and analyses that are
16 synthetic analyses of large databases, such as the
17 database of lead toxicology, in which these kinds
18 of details that you've referred to by Lanphear and
19 by Kenny Crump are incorporated into the full
20 documents. And so those kinds of factors tend to
21 be corrected for in major reviews that are
22 undertaken by large organizations like ATSDR.

23 Q. Okay. And you consider information in
24 the ATSDR to be reliable, scientific, and you've

1 relied on them, in part, in your report, right?

2 A. Yes, that's correct. And I have also
3 consulted for ATSDR.

4 Q. Okay. You just said something, I think
5 you said Kenny Crum. Do you know --

6 A. Crump.

7 Q. Crump.

8 Do you know him?

9 A. He's just a very famous guy.

10 Q. Oh, okay. So -- you referred to him by
11 Kenny. I thought that meant that you knew him.

12 You don't know him personally, do you?

13 A. No, I don't. But I think that's the
14 name he uses on his papers.

15 Q. Okay. So I don't believe that you refer
16 to the ATSDR on the toxicological profile for lead
17 from August 2020, although you do make reference
18 to that same thing for 2019. But I want to use
19 the 2021 and ask you some questions -- whoops, I
20 had stopped share and that was a mistake -- the
21 2021, if I may.

22 MR. ROGERS: So this will be, Sara,
23 Exhibit 29.

24 - - -

1 (Michaels Exhibit 29 marked.)

2 - - -

3 BY MR. ROGERS:

4 Q. So you're familiar with the document
5 that I'm showing to you sort of in the form,
6 right, or the way it appears, that this is, in
7 fact, the ATSDR from the Department of Health and
8 Human Services, right?

9 A. Yes.

10 Q. Did you -- am I right that you didn't
11 look at anything in the ATSDR for 2020 for
12 purposes of your report?

13 A. Apparently not. I think the most recent
14 one I have is this 2019. I don't recall seeing
15 the 2020.

16 Q. Okay. So I just want to ask you if you
17 agree with some of the statements that are made
18 here as -- within your background and experience
19 and your expertise as a toxicologist. And the
20 first one is on this page here that I'm showing
21 you now, which is Page 329.

22 You can see that we don't have the whole
23 August 2020 report. We just have a few selected
24 pages here. And it's -- we're now on Page 329 of

1 that.

2 It says "Standard methods for bone lead
3 XRF measurements have not been universally
4 accepted, in part, because the technology
5 continues to be improved, and this needs to be
6 considered in comparisons of measurements reported
7 by different laboratories and at different times
8 in developing the methodology used."

9 Do you agree with that?

10 A. I have no reason to disagree with it,
11 but I'm not familiar with the statement.

12 Q. And in terms of the work that Dr. Specht
13 did in his -- the bone lead scan reports that were
14 provided to you, you know, you haven't read his
15 deposition transcript or any of his studies -- or
16 have you? I forgot.

17 A. No.

18 Q. Have you read his papers or studies on
19 his technique for portable XRF machines?

20 A. No.

21 Q. So you don't know anything about, you
22 know, the extent of which and how Mr. Specht --
23 Dr. Specht went about calibrating and validating
24 his PXRF machine that he used for bone lead

1 measurements, right?

2 MR. LANCIOTTI: Object to form.

3 A. I don't have that information.

4 Q. The next statement here that I want to
5 ask you about is this one highlighted.

6 "Methodological factors can contribute
7 substantially to observed variability in bone lead
8 measurements in populations."

9 Do you agree with that?

10 A. I imagine it's true. I don't have
11 specific knowledge of it.

12 Q. "These factors include bone, lead
13 target, radioactive source, measurement, time and
14 data reduction methods approach to handling
15 negative values," right? Do you agree with that?

16 A. I have no reason to disagree with that.

17 Q. "Measurement uncertainty also appears to
18 contribute by biological factors such as BMI."

19 That's the body mass index, right?

20 A. Yes, I imagine so.

21 Q. And bone mineral content, right? Do you
22 disagree with that?

23 A. I have no reason to disagree with it.

24 Q. Basically you're not an expert or you

1 don't have expertise in bone scanning for purposes
2 of determining actual amounts of lead in bones, do
3 you?

4 A. No, I don't.

5 Q. And as I think we described earlier, in
6 your prior work up until your work on this case,
7 you had never had occasion to review and rely upon
8 or analyze bone lead content from bone lead scans
9 at any point in time in your career, right?

10 A. Correct.

11 MR. LANCIOTTI: Object to form.

12 MR. ROGERS: Okay. Let's take a
13 five-minute break here. Let me get reoriented
14 here. I'm going to change it up a little bit in
15 my order of questioning.

16 Just to let you know, Doctor, if you
17 have your report handy, I'm going to spend a lot
18 of time, probably the next couple of hours, going
19 through your report in some detail, so if you can
20 have that handy. And I will put it up on the
21 screen when we need to so Patrick can see it, but
22 let's take a five-minute break and let me get
23 organized here.

24 VIDEOGRAPHER: The time is 1:37 p.m.,

1 and we're off the record.

2 (Recess taken.)

3 VIDEOGRAPHER: The time is 1:48 p.m.,

4 and we're on the record.

5 BY MR. ROGERS:

6 Q. All right. Dr. Michaels, like I said
7 before we went off the record, I'm going to spend
8 a lot of time over the next couple hours here,
9 probably the rest of the day, on your report. And
10 we're going to start -- I'll start my questioning
11 back at the beginning where we were before, with
12 respect to this highlighted section of the first
13 Page 2 here of the -- sorry -- second paragraph --
14 no, I'm sorry. Bad question. Start at the
15 beginning.

16 I noted that you cite to the amended
17 master complaint at great length in your report.
18 Why is that? Why did you spend so much time
19 referring to the amended master complaint which
20 contains the allegations of the plaintiffs in the
21 case?

22 A. Well, I found that it was a useful
23 source of general information that I could rely
24 on. I didn't think there was anything

1 controversial that I did rely on, but if there
2 was, I could be wrong.

3 Q. Okay. So to the extent that there were
4 allegations in the complaint that you referred to
5 or factual statements in the complaint, you didn't
6 do any, like, quality control checks to find out
7 if they were accurate or not?

8 MR. LANCIOTTI: Object to form.

9 A. No, I didn't. I -- if there was
10 something in there that I felt was controversial,
11 I certainly would not have cited to it.

12 Q. I see.

13 So you basically relied upon the master
14 complaint for your report to, you know, just sort
15 of lay the groundwork, the foundation, the
16 background story in the case, but anything
17 controversial, you wouldn't have cited to it for,
18 right?

19 A. In fact, there was a particular
20 statement that I explicitly did not endorse, which
21 was the fact that the -- if I recall, that there
22 was some under-reporting of the water levels or
23 something like that. I can't recall. But I
24 explicitly stated that allegation is beyond the

1 scope of my consideration. And I felt that way
2 generally speaking, that I was not trying to pick
3 up any particular viewpoint from this document.

4 Q. Gotcha.

5 And while we're on that subject, as you
6 know, I represent the Veolia defendants -- Veolia
7 North America defendants in the case. And in
8 your -- you don't have any opinions in the case
9 directed specifically to Veolia or any of its
10 employees or any of the work that they did in the
11 case, right?

12 A. Yeah, I don't recall using that word,
13 "Veolia."

14 Q. So it's correct, then, that you don't
15 hold any professional opinions that you intend to
16 testify about, at least at this time, with respect
17 to the work that Veolia did for the City of Flint
18 and whether it met any accepted standards of care
19 or anything like that, right?

20 A. No. I haven't precluded any judgments
21 to be made about the standards of care or anything
22 else that you might refer to. I simply haven't
23 looked at the term "Veolia." If Veolia was
24 responsible for an allegation of mine, then Veolia

1 would be included. I really have no idea.

2 Q. Okay. So that leads me to have to ask
3 you a series of follow-up questions because of the
4 way you answered the question.

5 You said you haven't precluded. You
6 know, Doctor, here we are. You've written a
7 report; we're now taking your deposition. You
8 haven't said one word in your report about any
9 specific opinions that you hold with respect to
10 anything that Veolia did or did not do, but then
11 you just said, "Well, I haven't precluded that."
12 So, you know, I get one chance to take your
13 deposition here and I've got to know.

14 As of today, is it correct that you
15 don't have and have not formed any professional
16 opinions about whether or not -- about anything
17 having to do with Veolia and the work that it did
18 for the City of Flint in this case?

19 A. Well, I'm going to answer your question
20 to the best of my ability. And, apparently, it's
21 not a style of answer that you like.

22 The fact is, I don't know what Veolia
23 did. But I do know that there are questions about
24 what kind of pipes were put in and whether they

1 were all taken out and which ones were taken out,
2 all kinds of questions that might or might not
3 have to do with the role that Veolia played. If
4 I'm critical of something, the fact that I'm
5 unaware of a role that Veolia played in bringing
6 that aspect about does not preclude my including
7 Veolia in my opinions if subsequently I find out
8 that they did have something to do with it. I
9 just have not focused on Veolia as an entity. But
10 I have focused on issues, and if Veolia had
11 something to do with it, well, I don't have any
12 problem bringing Veolia in based on that.

13 Q. You don't know what Veolia did?

14 A. No, I don't know what Veolia does.

15 Q. You don't know what Veolia does, but you
16 also don't know what Veolia did or did not do with
17 respect to the work that it did for the City of
18 Flint as a consultant, right?

19 A. Right. I don't recall. I probably -- I
20 know that I came across the name before, but I
21 don't remember in what context.

22 Q. So this statement here in the second
23 paragraph where you say "In short, this report
24 evaluates general causation. General causation is

1 necessary to justify a physician's finding of
2 specific causation, that is, attribution of a
3 specific patient's condition to the patient's
4 exposure."

5 What is the source of that statement?
6 Where did this come from?

7 A. Comes from the rest of the report. This
8 is a summary of the report.

9 Q. No, but I mean your formulation of it
10 that general causation is necessary to justify a
11 physician's finding of specific causation, where
12 does that -- what's the source of that statement?

13 A. My general understanding over many years
14 of practice.

15 Q. Is that an understanding as to some type
16 of legal requirement or evidentiary foundational
17 requirement?

18 A. I believe that there probably is some
19 basis like that, but I only make the distinction
20 between general causation and specific causation,
21 as I've explained.

22 Q. So the way in which you're using these
23 terms, general causation and specific causation --
24 and you have "specific" and "general" both in

1 quotation marks -- that's the reason I asked --
2 those are scientific principles that you apply in
3 your expertise as a toxicologist, right?

4 A. Yes. That's the way I would put it. I
5 think that's correct.

6 Q. Okay. Well, finally I got one right.
7 You finally agreed with one of my formulations of
8 your statements here.

9 So -- and then, again, the attribution
10 of a specific patient's condition to the patient's
11 exposure as a matter of specific causation, you
12 know, you -- you're deferring to physicians to
13 make that specific causation connection, right?

14 A. Yes, that's correct.

15 MR. STERN: Object to form.

16 Q. Okay. You go on in the next paragraph
17 to say "The general causation issue for lead in
18 City of Flint municipal water is complicated by
19 the ubiquity of exposure from other sources."

20 Explain what you meant by that, please.

21 A. I believe I've explained that before.
22 We all know that people are exposed to lead from
23 many, many different sources, and those include
24 sources that were active before the City of Flint

1 switched to its Flint River source. So it's
2 complicated by the fact that it's hard to
3 attribute. You don't know which lead molecule was
4 associated with the river and which one was
5 associated with a can of peas, you know,
6 five years ago.

7 Q. Gotcha. And we did discuss this a
8 little bit earlier on.

9 In terms of the other sources of lead
10 for the bellwethers and the, you know, children in
11 Flint during this period of time, what would those
12 be?

13 A. What would the other sources be?

14 Q. Yes.

15 A. Well, I think I've listed some. You
16 know, kids go fishing. They used lead fishing
17 sinkers. Kids go hunting for squirrels and they
18 use lead bullets. Kids eat canned -- eat food out
19 of cans that may have solder that has lead in it.
20 Kids, you know -- they get exposed to dust that
21 has lead in it from an incinerator, for example.
22 We've talked about a lot of these kinds of
23 sources.

24 Q. I know. But, Doctor, you specifically

1 are referring in your statement here to "the
2 ubiquity of exposure from other sources," so I'm
3 asking you specifically, what are those other
4 sources of lead exposure that are ubiquitous that
5 I am -- that you are referring to in this
6 sentence?

7 A. I didn't say any particular source was
8 ubiquitous. I said there is ubiquity of exposure.
9 Everyone is exposed to lead --

10 Q. Okay.

11 A. -- from a mix of sources.

12 Q. From other sources.

13 A. Yes.

14 Q. So I'm asking, then, what are the other
15 sources that the children in Flint were exposed to
16 besides lead from the water?

17 A. And I've tried to answer that. I don't
18 have a particular kid's name with a list of the
19 sources. I have a list of sources that I've given
20 you. Some kids go fishing with sinkers that are
21 made of lead; some kids go shooting squirrels with
22 bullets that are made of lead; some kids eat food
23 from cans that are soldered closed with lead
24 solder; some kids may have a hand-to-mouth or pica

1 problem where they actually eat nonfood items and
2 that could include soil that has lead in it; you
3 know, some kids may help their parents with
4 gardening and the gardening may have, you know,
5 fall -- particles falling out of the air that have
6 lead in them.

7 There are a lot of different sources of
8 lead.

9 Q. And I don't think you mentioned but you
10 said before, dust, right? Dust in the home.

11 A. In the home, yeah. My -- yes, dust in
12 the home, dust in paint chips that can fall out
13 of, you know, the windowsill, or -- you know, kids
14 can rub their fingers along it and then in their
15 face. There's a lot of different sources of lead,
16 and I've tried to acknowledge that with complete
17 candor and complete understanding that there's not
18 just one source of lead.

19 Q. And are you familiar with the IBEUK
20 [sic] model for attempting to evaluate the various
21 sources of lead exposure in modeling predicted
22 blood lead levels from the EPA?

23 A. Yes, I am familiar with that.

24 Q. Have you used that model in any of your

1 work in the past?

2 A. I have not used the model. If you're
3 referring to a product that's for sale, it's
4 really not anything unique. It's just what we do
5 normally by hand. It just integrates it into a
6 computer program that puts that -- those
7 parameters in and attributes fractions of the
8 exposure to each source. You know, in the old
9 days, we try to do that individually without the
10 IEUBK model. But, you know, our people find that
11 useful.

12 Q. Yeah, I didn't mean a particular brand
13 or anything or a particular computer model. I
14 meant the modeling that's available to do that
15 type of thing.

16 You have done that type of modeling and
17 evaluation in the past, is that right, in your
18 work?

19 A. No, I have not used any computer model
20 to synthesize those exposure pathways. I've
21 always done it by the information I have
22 specifically about an exposure pathway.

23 Q. So if you don't use a computer modeling,
24 you would use mathematical calculations, right?

1 A. Yeah. We call them spreadsheets. We
2 use a lot of spreadsheets.

3 Q. All right. Spreadsheets.

4 So you have used spreadsheets using
5 mathematical formulas or calculations --

6 A. Oh, yes.

7 Q. -- to attempt to determine the extent to
8 which lead from dust and soil and water and other
9 things contribute to the overall load of lead that
10 would result in predicted blood lead levels,
11 right?

12 A. Yeah, I've done that, sure.

13 Q. Okay. Did you do it in this case for
14 any of the bellwether plaintiffs?

15 A. No, I did not. As I mentioned, the data
16 were not conducive to that.

17 Q. Explain why. Why wasn't the data
18 conducive to doing that?

19 A. Well, we don't really have exposure
20 levels. We don't really have the kinds of
21 detailed information that would be required to
22 fill in a model like that.

23 Q. What type of information would you need?

24 A. You know, I've been through this with

1 you before. For example, we don't know how often
2 the kids drink water; how much the water -- how
3 much water they drink; what the concentrations of
4 lead are in the water. We don't know when they
5 stopped drinking the water. We don't know when
6 they started using filters. We don't know how
7 much of their water intake came from schools. We
8 don't know how much may have come from garden
9 hoses. I think one of the kids drank directly
10 from a garden hose when outside.

11 There are many different parameters that
12 we don't know. And when those kinds of parameters
13 are addressed in the parent depositions, the
14 information is very vague and very approximate.
15 And so we don't really have the kind of
16 information that would be conducive to producing a
17 quantitative estimate. Or if we did use it, you
18 know, people like you might be attempted to say,
19 "Well, garbage in, garbage out," and I'd be
20 attempted to agree.

21 Q. Did you say "you," meaning me, why --

22 A. You.

23 Q. Oh. There's an expert in the case
24 called Dr. Yu, but I think he pronounces it Woo.

1 So you weren't referring to him, you were
2 referring to me?

3 A. No. I was referring to just your role
4 as a defense attorney, that you would probably
5 cast aspersions on such an analysis, and I
6 wouldn't blame you.

7 Q. What did you mean in this next section
8 of the sentence here, "And the consequent presence
9 of pre-existing lead body burdens and possibility
10 of pre-existing lead health effects"? What did
11 you mean by that?

12 A. Well, as I said, people are exposed to
13 lead, and they were definitely exposed before the
14 Flint River episode, and, therefore, they had
15 levels of lead in their body. And if they had
16 levels of lead in their body, they also could have
17 pre-existing conditions produced by that lead in
18 the body, so we can't preclude that.

19 Q. I see.

20 Did you do any evaluation to determine
21 what the pre-existing lead body burdens were for
22 the individual bellwether plaintiffs, the four
23 that we're concerned about now?

24 A. No, I did not quantify that.

1 Q. Did you do any evaluation of the
2 possibility of pre-existing lead health effects in
3 the four bellwether children?

4 A. Well, there were definite -- there were
5 summaries of medical records, and some of the
6 medical records dealt with conditions that
7 predated the exposure by the Flint River. And so
8 those things were not necessarily attributed
9 specifically to lead, but they were there before.
10 So if there was a neurobehavioral effect that
11 predated the Flint River, one has to consider the
12 Flint River didn't produce this effect. It may
13 have made things worse. We don't know.

14 Q. And when you're referring to these
15 summaries, you're referring to these summaries
16 done by a physician that were provided to you for
17 the bellwethers?

18 A. Yes, that's correct.

19 Q. I'm going to ask you a question about
20 these next couple of statements.

21 "It is simplified, however, by the
22 absence of a discernible Pb toxicity threshold.
23 That is, no safe blood Pb or lead level is known."

24 So the question is really, what do you

1 mean by that there is no -- there's an absence of
2 a discernible lead toxicity threshold from a
3 scientific point of view as a toxicologist?

4 A. That the dose-response curve goes down
5 smoothly and not abruptly at a certain threshold
6 exposure.

7 Q. I'm sorry. I don't understand that
8 exactly. What does that have to do with a
9 discernible toxicity threshold?

10 A. Well, a threshold is where the --
11 anything below that threshold would not produce a
12 toxic effect. There is no such threshold that
13 anyone can stand or --

14 Q. Okay. So there's no -- what you're
15 saying here is that the -- in your opinion, the
16 science as it exists today does not -- the science
17 has not been able to establish the threshold
18 amount of lead in terms of molecules or anything
19 else that would be necessary to cause a toxic
20 effect in human beings; is that what you're
21 saying?

22 A. Not exactly, no.

23 MR. LANCIOTTI: Object to form.

24 Q. Okay. Then explain it to me.

1 A. You are presuming that there is a
2 threshold, and I don't know what the threshold is,
3 or science doesn't know what the threshold is.

4 What this statement is saying is that
5 there is an absence of a discernible toxicity
6 threshold. It's not only that we don't know the
7 number. We don't know that there is a threshold
8 like that.

9 Q. Okay. I see what you're --

10 A. Now, let's go a little further than
11 that, because I think it's very significant.
12 Let's say that there was a threshold, as there is
13 for most substances. That threshold is not a
14 universal constant number that applies to
15 everyone. People have thresholds that are based
16 on their genetics, their nutritional state, their
17 age, all kinds of other factors that make the
18 threshold idiosyncratic for the individual. So
19 it's not a bright line even when there's a
20 threshold.

21 But what I'm saying here, which I think
22 is very clear, is that there is not, as far as I
23 know, a discernible Pb toxicity threshold.

24 Q. So then following that, the statement

1 that there is no safe blood Pb or lead level is
2 known, is that essentially the same thing, that
3 it's just not known whether or not there is one,
4 that is to say, you know, a certain amount of lead
5 will not result in any toxicity or harm?

6 A. Yeah, that's right. It is pretty much
7 the same thing.

8 Q. So in your opinion, are there any -- or
9 strike that.

10 So if there's no discernible or known
11 toxicity threshold level, how is it, then, that
12 you can say in your next -- or hold the opinion
13 that -- or do you hold the opinion that any
14 exposure to lead does cause or exacerbate or
15 contribute to causing or exacerbating health
16 effects?

17 A. I think you're misreading the sentence.
18 It says whether such exposure can cause, not does
19 cause.

20 Q. Well, that's what I'm --

21 A. We're talking about the risk. The
22 potential for such a thing to happen. We're not
23 specifically saying that in a particular
24 individual, it will happen.

1 Q. Right. Right. That's what I'm asking
2 you.

3 The fact that you say it can cause,
4 given what we've just talked about, does not mean
5 that it does, right?

6 A. No. I'm not sure that that's correct
7 either. I think that if it can cause something,
8 you know, they say anything that can happen, will
9 happen in the universe. And when you have a large
10 population, things that can happen tend to happen
11 sometimes.

12 And so when you're talking about risk,
13 you're talking about the real thing. Does it
14 happen? Yes, it happens. Sometimes you lose in
15 Russian roulette. Sometimes you're lucky. So if
16 you have a six-shooter, one in six times you're
17 going to lose.

18 In this particular example, the
19 presumption is that, yes, it does happen. Not
20 often, but it does happen.

21 Q. I guess I was trying to get to more of a
22 specific and not in a general sense. But in a
23 particular individual, whether or not a specific
24 additional amount of lead does cause additional

1 harm.

2 You're not saying it does or it doesn't;
3 you just say it might?

4 A. Yes. I guess you could kind of put it
5 that way. But if it might, it does. I don't
6 think it's very distinguishable. If it might be a
7 problem, then it is a problem. These are random
8 people. These are people who are exposed to
9 something, and you have to ask the question, is
10 that a risk for those people? And the answer is
11 that if there is a statistical risk for the
12 population, there is a statistical risk for the
13 individual as far as we know.

14 Q. I see.

15 And the issue -- the next step, the
16 issue of whether or not in a specific case with a
17 specific child, based upon that particular
18 child's, you know, medical makeup and background
19 and medical history and so forth and so on,
20 whether or not an additional amount of lead --
21 that person being exposed to additional amount of
22 lead actually caused any harm to that child,
23 you're leaving that to the physicians in the case
24 for those analyses and opinions, right?

1 A. For a particular child, yes. The
2 specific causation issue is what I leave to the
3 physician. Absolutely.

4 Q. Okay. All right. I got it. Thanks.

5 We're making progress. We're through
6 Page 5. That's good.

7 Okay. On Page 8, I do have some
8 questions about this paragraph that's highlighted
9 here starting at the top of the page.

10 "Indeed, homes served by private wells
11 may have lead residues, and these originate not
12 from the municipal source but from corrosion of
13 household plumbing and their well components."

14 You're not aware that any of the
15 bellwether plaintiffs had their water serviced by
16 private wells, right?

17 A. Right. In fact, I specifically said
18 that I didn't find any.

19 Q. Right.

20 And in the next paragraph, "In the case
21 of the City of Flint, the preponderance of
22 potential exposure via drinking water appears to
23 originate from lead in service lines."

24 And you have a citation to -- in your

1 Footnote 7, "Most of Flint's 550 miles of water
2 mains are now 75 years old and constructed of cast
3 iron piping."

4 And then you reference 35, Page 91.

5 35 is the master amended complaint in
6 your citation reference numbering system, right?

7 A. Yes, that's correct.

8 Q. So -- and then it says a little bit
9 further, again, citing to 35, the master
10 complaint, "An estimated 15,000 of Flint's 30,000
11 residential service lines are composed, at least
12 partially, of lead. The exact number is presently
13 unknown."

14 Since the time at -- or before the time
15 at which you wrote your report, did you do
16 anything on your own to evaluate the numbers or
17 percentages of service lines that were comprised
18 of lead versus some other material in the City of
19 Flint?

20 A. No, I did not. Well, I may have tried,
21 but I didn't find anything. I did not think this
22 was a controversial statement and, therefore, I
23 cited it because it gave the general idea that
24 there was a pretty good chance that there would be

1 lead in the service lines. The actual numbers are
2 not that significant one way or the other.

3 Q. Well, they're certainly significant when
4 evaluating the lead exposure of individual
5 plaintiffs, that is to say, whether the service
6 lines were lead or not, right?

7 A. Yeah, that's why --

8 MR. LANCIOTTI: Object to form.

9 A. -- the statistic is not that
10 particularly important. I just thought it was
11 worth pointing out that not all of them were made
12 of lead and that there was some risk that they
13 were.

14 Q. Why was it important to know when
15 evaluating an individual plaintiff's, in this
16 case, exposure to lead to know whether or not the
17 service lines providing water to their houses were
18 made of lead or not?

19 A. Because these are exposure pathways.
20 And we try to identify the various exposure
21 pathways that can produce the blood lead levels
22 that the people have. And so whether it's lead or
23 not lead is a very important issue.

24 Q. Okay. And not to belabor the point, but

1 we had this discussion earlier.

2 As you sit here today in your
3 deposition, you don't know whether the lead -- the
4 service lines for these four bellwether
5 plaintiffs' houses were made of lead or not,
6 right?

7 MR. LANCIOTTI: Object to form.

8 A. Well, to the extent that I know, it's in
9 the report. And if you're telling me it's not in
10 the report and I haven't verified, then I didn't
11 know, right.

12 Q. Would this statement be true with
13 respect to the individual bellwether's homes, that
14 the preponderance of potential exposure via
15 drinking water would originate from lead in the
16 service lines if, in fact, they were lead service
17 lines?

18 A. If they were -- if they were not lead
19 service lines?

20 Q. No. You say here, "The preponderance of
21 potential exposure via drinking water appears to
22 originate from lead in service lines."

23 That statement is true, right?

24 A. I believe so. That's -- yes.

1 Q. So does that also mean that if the
2 service lines were not made of lead, that the
3 exposure would not be from drinking -- the lead
4 exposure would not be from the service lines?

5 A. Yeah. It would be something else. Of
6 course.

7 Q. What other sources would there be?

8 A. Well, there's the water mains, number
9 one. And then there's the water -- the pipes
10 inside the house and the soldering of those pipes.
11 So there are internal kinds of sources. And there
12 are the schools.

13 Q. When you say "the water mains," are you
14 aware of any of the Flint water -- or have you
15 undertaken a study to determine what the water
16 mains were comprised of?

17 A. I thought that I might have cited
18 something like that.

19 MR. LANCIOTTI: Object to form.

20 A. I thought I might have cited something
21 like that. My own personal opinion is that the
22 water mains are larger diameter and they might
23 have less influence on the water. The service
24 lines are smaller diameter, and there is a more

1 intimate association of the service of the pipe
2 with the water that passes through the pipe. So
3 that may be another source of increased influence
4 of the service line compared to the water main.

5 Q. Okay. But with respect to the water
6 mains, are you aware of any evidence that any of
7 the water mains in the City of Flint were made of
8 lead?

9 A. No, I'm not -- right now, I'm not. If I
10 didn't cite it, then I probably was not when I
11 wrote the report.

12 Q. To the extent to which water -- this
13 next sentence here, "Water delivered via service
14 lines then enters the homes and is circulated
15 within homes via pipes often made of plastic or
16 copper, the latter possibly joined with
17 Pb containing solder."

18 If the pipes in somebody's homes had
19 been replaced and were made of plastic, the
20 plumbing throughout the system, and the lead --
21 the service lines leading into the house were not
22 lead, would there be any sources of lead that
23 could get into the water in that home?

24 A. Were there any? I don't know. But

1 certainly not those sources.

2 Q. Can you think of any that would be -- if
3 the plumbing was all plastic in the home and the
4 service lines were not made of lead, what would
5 the potential source of lead in the water be in
6 that home?

7 A. Well, we've talked about one in
8 particular, which is wells.

9 Q. Okay. Leave out the wells. Sorry.

10 Assuming there was service by the Flint
11 water distribution system, if you had service
12 lines which were not lead and you had plastic
13 plumbing throughout the house, then there wouldn't
14 be any source of lead to get into the water for
15 that particular house, right?

16 MR. LANCIOTTI: Object to form.

17 A. You know, I think that the answer to
18 that question is that if you make the assumption
19 that the water is getting the lead from the pipe,
20 you're right. That is exactly what you could
21 conclude.

22 Does some form of water treatment plant
23 equipment have lead in it? I don't know. I have
24 not looked into the water system in that level of

1 detail. But if you're asking me conceptually
2 could it come from someplace else, well, upstream
3 is the water treatment plant, and that's the next
4 place where it could come.

5 Q. Okay. We're on Page 10 now. No, I'm
6 sorry. We're still on Page 9. Sorry. Let's see.

7 You mention a Pieper study from 2018
8 reporting sampling of homes, and then on the next
9 page, you also refer to the Pieper paper. That's
10 on page -- I'm sorry. Forgive me. I guess -- I
11 guess the only -- the section that you refer to
12 the Pieper paper of 2018 right here is on this
13 page.

14 And I'm going to ask you some questions
15 about that later on, so let's just hold that. I
16 just wanted to note that you did refer to the
17 Pieper paper to some extent here, and you're
18 talking about -- you're using it here for purposes
19 of information about the water lead levels that
20 were measured and as reported in that paper,
21 right?

22 A. Yes. I think that the tenor of those
23 remarks is that there were numbers associated with
24 the study, and that the authors concluded that

1 that indicated a generic problem in Flint, and,
2 therefore, it goes beyond just the numbers. It's
3 a -- it's a judgment about the problem of lead in
4 water in Flint.

5 Q. Okay. I'm highlighting an additional
6 section here on Page 10 where the introduction to
7 this part of it is here, "After the change in the
8 City of Flint water source, the incidence of
9 elevated blood lead levels in Flint rose from
10 2.4 percent to 4.9 percent, compared with no
11 significant change outside of Flint."

12 And that's the Hanna-Attisha study from
13 2016, right?

14 A. Right.

15 Q. And what this means is that what she
16 reported was that the -- by elevated blood lead
17 levels, she was reporting that the percentage of
18 blood lead levels above a certain amount rose from
19 2.4 to 4.9 percent, right?

20 A. They reported that, yes, not she.

21 Q. Okay. The authors, yeah.

22 And, then, my question is about the next
23 one, "Concurrent tests for lead in drinking water
24 at bellwether plaintiffs' homes apparently were

1 not undertaken."

2 So that just confirms what we talked
3 about earlier. You were saying here in your
4 report that you're not aware of any water lead
5 levels taken at any of the bellwether plaintiffs'
6 home during the switchover period, right?

7 A. Yes, that's correct.

8 Q. Okay. Thanks.

9 All right. So these -- we talked about
10 all of the blood lead level tests.

11 Yeah, in terms of the level of
12 detection, you know, if the -- in terms of
13 interpreting the test reports, okay, for those
14 test reports that we looked at for the bellwether
15 plaintiffs that had a report that said less than
16 3.3 micrograms per deciliter, what that means is
17 that the particular equipment that was used to
18 measure the content of lead in that blood sample
19 was -- had a level of detection that was at least
20 3.3 micrograms per deciliter; is that right?

21 A. Yes, that's correct.

22 MR. STERN: Object to form. Sorry.

23 Q. Okay. So in terms of what is known
24 about the actual blood lead content of that

1 particular sample that was taken, if it's reported
2 that way, you just don't know what it is. It
3 could be zero or it could be, you know, up to 3.2,
4 right?

5 MR. STERN: Object to form.

6 Q. Is that right?

7 A. Yeah, that's correct.

8 Q. Okay. And you mentioned, and some other
9 witnesses have testified that depending upon the
10 type of equipment used to test the content of
11 blood -- sorry -- the content of lead in blood,
12 there is equipment -- state of the art type of
13 equipment that can have a -- that have a much
14 lower detection limit than, you know, 3.2 or 3.3,
15 right?

16 A. Yes, that's correct.

17 Q. So that if one of the blood lead levels
18 that we looked at was a 2.0, you would assume by
19 reading that report that the level of detection
20 was capable of measuring that amount and that that
21 represents an actual amount, 2.0, right?

22 A. Yes, that's correct.

23 Q. So explain to me -- I didn't really
24 understand what the point was that you're trying

1 to make here in this section. Eight of the
2 15 blood lead tests were reported as nondetects,
3 along with the applicable limit of detection,
4 values 3.3 -- one result 3.3, et cetera,
5 et cetera, 3.4. All eight for nondetects are
6 higher than blood lead concentrations reported
7 among the seven positive results.

8 Honestly, I just wasn't following what
9 you meant by this. Can you explain it to me?

10 A. Well, for the kids who had
11 state-of-the-art equipment used in detecting their
12 blood lead levels, most of those values were lower
13 than the level of detection for this crude
14 equipment. And so these values, eight of them,
15 all may have had, you know, positive numbers in
16 there, but you wouldn't know that because the
17 equipment was so crude.

18 Q. But why does that -- explain the logic
19 to me. The fact that eight -- for nondetects are
20 higher than the concentrations reported among the
21 seven positive results, why does that logically
22 mean anything about, you know, what the actual
23 amounts were in the ones reported as nondetects?

24 A. I think I will refer you to Page 12

1 where this issue was explained.

2 Q. That would be good. Thanks. Yeah,
3 let's look at that.

4 A. You know, just use of methods less
5 sensitive than state of the art raises the
6 possibility that some or all of the tabulated
7 nondetects actually would have been reported as
8 detects if state-of-the-art methods had been
9 applied.

10 Q. Okay. Can I stop you there? Please,
11 let me stop you there. Thank you.

12 I just want to ask you -- you're saying
13 that it raises the possibility, but you -- there's
14 no way of knowing, right?

15 A. Right. That's correct.

16 Q. Okay. Please continue on. Thanks.

17 A. It's part of credibility and
18 probative -- probativeness of the source of
19 evidence. And if you look at the conversely
20 statement, all seven of the tabulated detects
21 probably would have been reported as nondetects
22 had the relatively insensitive tests been applied.

23 Q. Oh, I see.

24 A. So if you had two but the test only

1 could detect 3.3, then it would be less than 3.3
2 and not detect.

3 Q. I gotcha.

4 So you had in there, for example, there
5 was a .7, as I recall -- actually, I'm looking at
6 the chart right here, so --

7 A. Yes, there is a .7.

8 Q. Let me tell you what this is. There's
9 a .6. There's a .7. There was a 2.0 that we
10 looked at. There's a .8 -- sorry. I'm not
11 referring to just the bellwether plaintiffs, the
12 four. I'm looking at your whole chart.

13 A. Yeah, that's fine.

14 Q. Okay. So just to illustrate the point,
15 there's a .3., there's a .7., there's a .6, and we
16 talked about a 2.0 that's not on your chart but
17 that we looked at.

18 What you're saying is here if the level
19 of detection of the test that was used at that
20 time on those plaintiffs was 3.3, those would have
21 been reported as less than 3.3, right?

22 A. Yeah. They would have been nondetects.

23 Q. All right.

24 A. And the paragraph ends with the idea

1 that the more general issue is raised of whether
2 Pb tests commonly used or commonly used methods
3 less sensitive than the contemporary state of the
4 art, and, therefore, whether the fraction of
5 children with elevated blood levels -- blood
6 Pb levels might have been underestimated and,
7 therefore, under-reported.

8 Q. Okay. But, sir, with respect to
9 whatever type of equipment was used, is it correct
10 that with respect to these four bellwethers,
11 you're not aware of any blood lead level
12 measurements that were ever done that were
13 reported as higher than 3.3 micrograms per
14 deciliter, right?

15 A. I will have to go back.

16 No, it looks like they were all within
17 that range.

18 Q. And when you say here it raises the
19 general issue, and the last part of the sentence
20 is "and whether the fraction of children with
21 elevated blood Pb might have been underestimated
22 and under-reported," what is the elevated blood
23 lead level that you were referring to? What's the
24 number?

1 A. Well, as I said, I recall reading that
2 an average number might have been 1. Again, we're
3 getting into this realm of semantics. Anything
4 above zero could be considered elevated. But if
5 you look at 1 as a kind of average number, the
6 numbers that we're seeing did exceed 1, and so
7 they could be elevated blood levels in those
8 children relative to the average blood levels.

9 Q. Okay. But in the plaintiffs that we
10 have -- the four bellwethers we have here, the
11 only measurement that exceeded 1 was the 2.0 that
12 was from -- sorry -- 2009 for -- I think it was
13 for A[PPI] T[PPI], but let me just make sure.

14 Is that right?

15 A. Well, I have --

16 Q. I'm sorry. It was D[PPI] W[PPI]. That
17 was the 2.0 from September 2009.

18 A. Right. But we also have three values
19 for G[PPI] B[PPI]

20 Q. Okay. I'm --

21 A. 2.5, 3.1, all above 2, all above 1. So
22 those are elevated blood levels for the four
23 plaintiffs that we're referring to today.

24 Now, of course, this statement in my

1 report goes beyond those four plaintiffs. But,
2 yes, we do have it with respect to the four as
3 well.

4 Q. Well, we don't -- the one that we have
5 for the four that's the 2.0 was from 2009 for
6 D[PPI] W[PPI]. The rest of them were below 1 for
7 the remaining bellwether plaintiffs, right?

8 A. As I said, G[PPI] B[PPI] has three --

9 Q. I know. Sorry. Dr. Michaels, I'm just
10 referring to our four now. I understand the
11 confusion. I'm talking about our four: S[PPI],
12 T[PPI], V[PPI] and W[PPI].

13 A. Yeah. I see those are lower. Yes,
14 that's correct.

15 Q. Okay. So you didn't -- when you were
16 using the term here, whether the fraction of
17 children with elevated blood lead might have been
18 underestimated and under-reported, did you have --
19 did you mean to define -- did you have a number in
20 mind that you meant as elevated blood lead?

21 A. No, I did not.

22 Q. Well, you used the word -- I mean, you
23 described -- you chose to use the word "elevated"
24 blood lead. You can't describe to me what you

1 meant by that in terms of --

2 A. I think I did describe that. I just
3 wasn't thinking of a particular number. I thought
4 that's what your question was.

5 Q. Well, then what was it? Elevated from
6 what to what?

7 A. Well, that's what I was saying, that
8 depending on what you mean by "elevated," you
9 know, a normal level ought to be zero. Nobody
10 should have any lead in their body. So,
11 unfortunately, we don't live in a world like that.
12 But we all have elevated blood levels.

13 You know, there are other pollutants in
14 the world that we shouldn't have in our bodies,
15 things that are entirely synthetic such as
16 plutonium, as I've mentioned earlier, and the
17 PFOA-type contaminants that are only a product of
18 technology. Those should be zero. In our world,
19 they aren't zero. We all have levels of those.
20 Are they elevated? That depends on your
21 definition of elevated. They are elevated
22 relative to zero, which is what we ought to have.
23 They're certainly elevated in this case relative
24 to 1, which is what I think is the average for

1 kids.

2 So whatever your definition is of
3 elevated, if you are under-reporting or
4 underestimating, that skews your data in the wrong
5 direction.

6 Q. But I'm just trying to get at what you
7 use -- what your definition of elevated was here
8 in this sentence. Was it zero or was it 1?

9 A. Neither. I told you right now that it
10 depends on your definition of elevated. I said
11 that it is elevated relative to zero, which is
12 what it ought to be; it's elevated relative to 1,
13 which is what it actually is. And using any
14 number in between or even close to 1 or 2, you
15 still have an underestimating bias in your process
16 there by using crude technology. I think that's
17 pretty clear.

18 Q. What was your definition of the word
19 "elevated" when you used it in that sentence?

20 A. I believe I just --

21 MR. LANCIOTTI: Objection; asked and
22 answered.

23 A. I believe I'm finished answering that
24 question.

1 Q. Is it zero or 1?

2 A. Yes.

3 MR. LANCIOTTI: Object to form; asked
4 and answered.

5 Q. Okay.

6 MR. ROGERS: All right. So let's take a
7 five-minute break or so. It's about 2:40 right
8 now. Let's take a stretch break. We have a lot
9 more to get through in your report here. So let's
10 just keep plugging away.

11 I'm going to next get to, Doctor,
12 starting on Page 47, if you want to turn to that,
13 when we get to the particular four bellwethers
14 that we're concerned about here starting with
15 SPP[REDACTED].

16 Let's take five minutes.

17 VIDEOGRAPHER: The time is 2:40 p.m.,
18 and we're off the record.

19 (Recess taken.)

20 VIDEOGRAPHER: The time is 2:50 p.m.,
21 and we're on the record.

22 BY MR. ROGERS:

23 Q. All right. Dr. Michaels, we're up to
24 Page 47 of your report now, and I do -- you can

1 see that right on your screen?

2 A. I do.

3 Q. So this is referring to EPPI SPPI ,
4 the bellwether whose parent is Danielle Wheeler.

5 And just on the next page, it appears
6 that -- we talked about this earlier -- that you
7 did some research and got some information about
8 the particular house.

9 Is that a -- where did you get this
10 photo of the house?

11 A. Well, let's see.

12 Q. It says the "The Flint Property Portal."
13 Is that it or ...

14 A. Yeah. The attorneys provided me with
15 pictures of the houses and the lots, I believe,
16 from the source. There was one missing, and I
17 looked it up myself and found -- there were a
18 couple missing that I found in some other sources.
19 But these were provided to me for the most part.

20 Q. I'm sorry. Are you saying that all of
21 this information from the Flint Property Portal
22 was provided to you, or just the photos?

23 A. I don't recall. I imagine that -- I
24 don't know. Maybe I looked it up. I don't know.

1 Q. Yeah, I'm just trying to probe your
2 memory here.

3 This information that you have from the
4 Flint Property Portal, including the
5 photographs -- oh, I see. Wait a minute. It does
6 say here -- and this might be a hint. It says
7 "Figure 10, Lincoln Avenue, Flint," et cetera,
8 et cetera, and there's an asterisk, and then at
9 the bottom of the page, if you look down at the
10 bottom, it says "Source: Levy Konigsberg."

11 So does that refresh your memory and
12 does that mean that this information was provided
13 to you by the law firm?

14 A. Yes, that's what it means.

15 Q. Okay. Now, this summary of the
16 information about EPPPI SPPPI that is contained
17 in your report, was that also provided by the law
18 firm, or is this your summary of the information
19 that you wrote?

20 A. This is my summary. I wrote it.

21 Q. Okay. I meant to ask you and I don't
22 think I did, for the depositions of the bellwether
23 parents that you read and the medical records that
24 you looked at and water records, if any, or, for

1 that matter, any of the literature that you
2 reviewed, did you take any notes or do any
3 highlighting or anything like that of any
4 important information?

5 A. I don't recall, but I might have.

6 Q. So to the extent that there are
7 deposition transcripts of the bellwether
8 plaintiffs, do you happen to have any handy, right
9 in your office where you're at now?

10 A. Those were very big documents, and I
11 don't believe I printed them out. I probably
12 looked at them online.

13 Q. I was just trying to figure out if maybe
14 you had highlighted any of them.

15 If you would have done that, it would
16 have been just on the electronic copies? Is that
17 what you're saying?

18 A. No, I wouldn't have done it on the
19 electronic copies at all. I don't think I have
20 those -- I don't think I printed any of those out.
21 If I did, I don't remember.

22 Q. Okay. So getting to EPPPI SPPI [REDACTED], your
23 information is that he was living in this house
24 that is depicted here, 1313 Lincoln Avenue, as of

1 the water switchover in April 2014, because you
2 say so right up here in the first sentence, right?

3 A. Okay, yeah.

4 Q. And the next one is -- and I think this
5 has been confirmed -- he lived at that -- **EPPI**
6 lived at that address from 2011 right up to the
7 present.

8 That's the information you have as of
9 the time you wrote your report, right?

10 A. Correct.

11 Q. It says here, "The service lines were
12 inspected and found to be made of copper; no work
13 was needed."

14 Where -- what is the source of that
15 information?

16 A. I don't recall because I don't see a
17 citation there. It could have been a parent
18 deposition or it could have been -- it probably
19 was a parent deposition, but I don't really know.

20 Q. And then it says here, "The internal
21 plumbing of the house was also inspected and,
22 although found to be copper, was also found to
23 have lead-containing solder in the joints." And
24 there is a reference to pages.

1 Would that be pages from the deposition
2 of the mom?

3 A. I believe "20" would be the deposition
4 of the mom, yes.

5 Q. Okay. And then it says "Ms. Wheeler was
6 advised not to use the drinking water." Again,
7 Page 221.

8 Do you know when that was, the timing of
9 that?

10 A. No, I don't know the timing of that.
11 And in most cases, the parent did not know the
12 timing of that.

13 Q. All right. Then going a little bit
14 further down here, you have some descriptions of
15 what they used the water for, bathing, showering,
16 washing, brushing teeth, et cetera. I want to
17 direct your attention to this part, though.

18 "They stopped drinking the unfiltered
19 water, however, sometime in 2014, after receiving
20 an official warning letter. These facts seem also
21 to have applied to Ms. Wheeler's mother nearby,
22 where the kids would go frequently."

23 And you cite to Pages 161 through 163 of
24 that deposition testimony, correct?

1 A. Yes.

2 Q. So the information that you have with
3 respect to EPP1 SPPI from her mother --
4 sorry -- from his mother was that the family
5 stopped drinking the unfiltered water in 2014
6 after receiving a warning letter, right?

7 A. Yes.

8 Q. And Ms. Wheeler also testified that that
9 also applied to her mother's house, who lived
10 nearby, where her children would go frequently,
11 namely, that they stopped drinking the water
12 there, right?

13 A. Yes.

14 Q. So in the middle of Page 49 -- remember
15 we -- I asked you a few questions which led you to
16 answer something to the effect that you had done
17 some quantification or analysis about the period
18 of time for exposure, that each of these
19 bellwether plaintiffs had and their families to
20 the water.

21 Is this for -- at least with respect to
22 EPP1 SPPI, is -- this paragraph in the middle
23 of the page here, does that contain your analysis
24 about the period of exposure for EPP1 SPPI?

1 A. No. I would say that's an example of
2 such analysis. For example, just the paragraph
3 above it has an additional component to that
4 analysis.

5 Q. Oh, I see. I'm sorry. This is his
6 potential exposure from drinking water at school.
7 I see.

8 But with respect to -- did you do an
9 analysis of the potential exposure period for the
10 period of time that EPP [REDACTED] SPP [REDACTED] was drinking
11 water at the home of -- either his own home or his
12 grandmother's?

13 A. Well, at the bottom of Page 47, it says
14 that this amounts to approximately 539 days or
15 1.48 years of Flint water Flint River use, where
16 that 1.48 years of potential exposure in his
17 residential drinking water. And then I go into
18 the transcript indicating that the family used
19 water for multiple purposes. And so that period
20 of time would refer -- during that period of time,
21 there were a number of sources. And then it says
22 they stopped drinking the unfiltered water
23 sometime in 2014. So that would knock out the
24 drinking component but not the other components.

1 And so you can see it's a very difficult
2 and complex analysis. I engaged in it because I
3 am an objective observer. That's my intent here.
4 But I can't say that this is simple.

5 Q. So the maximum amount of exposure time
6 would be 539 days from April 25th, 2014 to
7 October 16, 2015, right?

8 A. Yeah. For some kind of exposure, yes.

9 Q. Okay.

10 A. And there are multiple kinds that are
11 mentioned.

12 Q. So exposure -- but that's exposure to
13 water coming out of the taps in their house?

14 A. Yeah. And then there's the additional
15 exposure from school, which is the next page, I
16 think, or the page after.

17 Q. Well, that would be the same, wouldn't
18 it? I mean, the potential maximum exposure at
19 school would be the amount of time they were at
20 school within that 539-day period, right?

21 A. I believe so. I would think so. I have
22 that described as well. You see here I talk about
23 some discrepancies about the information, and so
24 I've tried to fix that up to the extent that I

1 can.

2 Q. Well, going back to Page 47 with respect
3 to EPPPI SPPPI and the mom, Danielle Wheeler, she
4 indicated that the family used water for multiple
5 purposes. And you list it here: Drinking, making
6 Kool-Aid, cooking, bathing, showering, clothes
7 washing, and brushing teeth.

8 When she testified that she stopped
9 drinking the unfiltered water sometime in 2014
10 after receiving an official warning, did you
11 interpret that to mean that she also stopped
12 making Kool-Aid with it?

13 MR. LANCIOTTI: Object to form.

14 A. I assume she stopped making Kool-Aid
15 with it, yeah.

16 Q. I'm sorry. You and Patrick were
17 speaking at the same time.

18 Did you say yes, that that was your
19 assumption?

20 A. I would assume that they stopped making
21 Kool-Aid --

22 Q. Yeah.

23 A. -- because you drink Kool-Aid.

24 Q. Gotcha.

1 I can't remember right now whether this
2 is true or not, but are part of the documents --
3 were part of the documents that you reviewed in
4 your work on the case in preparing the report,
5 records related to the -- any water tests that
6 were done at any of the schools that the
7 bellwether plaintiffs attended?

8 A. Those are cited in the document, yes.

9 Q. Yeah, I see. Okay. Thanks.

10 Because they're not listed separately in
11 your list of literature or information cited.

12 So did you personally -- the source of
13 this information on Page 49 for SPPI [REDACTED] schools
14 and the school water supply -- let's start at the
15 beginning.

16 There's a first reference to the
17 plaintiff's fact sheet. Then there's the
18 deposition transcript. Then it says here under
19 Pb lead concentrations in school drinking water,
20 the State of Michigan, et cetera, reports drinking
21 water sampling, blah, blah, blah -- oh, I see. We
22 would be able to find it under 34E. I gotcha.

23 A. Yeah, that's under -- that's on
24 Page 129.

1 Q. I see it now. Thank you.

2 So you did review the MDEQ reports
3 reporting information for these various schools.
4 I see that. Okay. Thanks.

5 A. Every single one of them.

6 Q. Yeah. Thanks.

7 All right. So just to be clear about
8 the drinking water, on this section for bottled
9 water, she received a -- she stopped drinking the
10 unfiltered water sometime in 2014 but did not
11 receive water filters until mid to late 2015.
12 However, during that period of time, during the
13 interval, the family did drink bottled water until
14 they got the filters later, right?

15 A. Yes, that's correct.

16 Q. And they also used the bottled water for
17 cooking and bathing during that period of time,
18 right?

19 A. Yes.

20 Q. So in terms of the SPPI plaintiff, as
21 of the point in 2014 when they received the
22 warning and they stopped drinking the water and
23 they stopped using the water for Kool-Aid, they
24 also stopped using the water -- tap water for

1 cooking and bathing, right?

2 A. No, it doesn't say that.

3 Q. It says "During this interval, the
4 family drank bottled water. They also used the
5 bottled water for cooking and bathing."

6 A. Right.

7 Q. What's wrong with what I said?

8 A. It doesn't mean that they also didn't
9 use the shower or -- you know, it's hard to
10 imagine that they did everything with bottled
11 water. They didn't get so much bottled water that
12 it was enough for a family to use. That was one
13 of the complaints in the various parent
14 depositions, that, you know, sometimes the water
15 was free. Sometimes they would have to buy it.
16 Sometimes it wasn't that much. Sometimes it
17 was -- you know, how would you carry it. There
18 were all kinds of issues that were raised. And,
19 again, you'll be challenging my memory too much if
20 you ask me to explicate in particular examples
21 except to the extent that I've recorded it.

22 Q. No, I get you. And that's a fair point.
23 You'd have to -- either you or I would have to
24 look at the exact deposition testimony to clarify

1 that issue there, right?

2 Okay. Here's the reference that I
3 wanted to make sure we covered, on the bottom of
4 Page 50. EPPi bone lead level was reported to
5 be 6.2 micrograms per gram. And then you have
6 these reference ranges here, greater than
7 10 equals persistent exposure, greater than
8 20 equals persistent intense exposure. I reported
9 to you that Dr. Specht said that that was a
10 mistake. Those reference ranges weren't supposed
11 to be on the report.

12 And so would you accept my report that
13 that's what he said for purposes of this question?
14 I want you to assume that to be true. Okay?

15 A. No, I don't assume that. Right now,
16 from what I understand, the mistake that you --
17 that you explicated was whether that was supposed
18 to be included. You did not say that it was a
19 mistake with respect to whether it is accurate.

20 Q. Okay. I'm going to ask you to assume
21 that it was a mistake and the reference ranges
22 there were not included and were not intended to
23 be included and were not accurate.

24 My question to you is: Independent of

1 the reference ranges that were reported by
2 Dr. Specht, you have no independent, separate
3 knowledge as to what reference ranges would be so
4 as to indicate persistent exposure or persistent
5 intense exposure for bone lead, do you?

6 A. No, I don't have --

7 MR. LANCIOTTI: Object to form.

8 A. -- have the specific source of that
9 information.

10 On the other hand, let me just point out
11 that you did show me one or two papers on this
12 subject relating to the variability of these
13 numbers. And since we only have one sample, we
14 are not dealing with the reference -- with the
15 papers -- with the issue dealt with in the papers,
16 which is resolving the source of the variability.
17 We only have one number. We don't have a
18 variance. We don't have a variability. We only
19 have the number. And so that, I think, is an
20 important concept to bring in.

21 Q. Okay. Let's move on to Plaintiff
22 A PPI T PPI. The summary of the information
23 about her begins on Page 53. "Residential water
24 supply," first subject.

1 So from the time at which the water --
2 the water was switched over to the Flint River on
3 April 25th, 2014, Ms. T~~PPI~~ was living at
4 3314 Cherokee Avenue.

5 That's the information that you have,
6 right?

7 A. Correct.

8 Q. And she lived there, A~~PPI~~ T~~PPI~~ did,
9 up until some point in 2018, right?

10 A. Okay. Yes.

11 Q. But, I mean, that's what you're
12 reporting here, right?

13 A. Yes.

14 Q. And the deposition transcript of the mom
15 indicates on Page 74 that the service line to the
16 Cherokee Avenue house was replaced in 2018, right?

17 A. Right.

18 Q. Did you do any separate research to
19 determine whether or not that particular house at
20 Cherokee Avenue where A~~PPI~~ T~~PPI~~ lived during
21 that period of time was part of the FAST Start
22 program?

23 A. As I said, I believe that I looked at a
24 very extensive table and did not find the

1 addresses of any of these plaintiffs in that
2 table. And so the answer is I tried and did not
3 find the information, as far as I can recall.

4 Q. So in this section concerning water
5 usage, you report Ms. TPPI as having --
6 Apricott TPPI as having testified as follows, that
7 she indicated that in the spring of 2014, the
8 family began to notice that their tap water was
9 discolored and odorous. Next sentence, "Even so,
10 when bottled water was unavailable, the family
11 continued to drink the tap water about 50/50, and
12 they also used it for cooking. 'We tried to get
13 bottled water, but cooking purposes, I didn't have
14 a choice. We had to use that water.'"

15 So is it your interpretation of what
16 Ms. TPPI was saying here that as of April -- as of
17 the spring of 2014, after they noticed -- she
18 noticed -- the family did -- that the water was
19 discolored and odorous, that even when bottled
20 water was unavailable, the family continued to
21 drink the tap water about 50 percent of the time?

22 A. Yeah, I guess that's about right.

23 Q. Same for cooking purposes. She tried to
24 get the bottled water, but when they couldn't,

1 about 50 percent of the time, they would have to
2 use the tap water; is that right?

3 A. Well, I don't know that the 50/50 refers
4 to the cooking or not. It looks like it refers to
5 the drinking. But I don't know.

6 Q. Well, if it --

7 A. They had to use it. They had to use it,
8 yes. The fraction, I don't know. And how
9 reliable is that fraction, I don't know.

10 Q. You're just reporting what was written
11 there as 50/50 on the deposition transcript,
12 right?

13 A. Yes, that's correct.

14 Q. I see.

15 And again here for this page that you're
16 looking at, Page 54, there's an asterisk; this
17 information about the house and where it was
18 located within Flint and the photos there, that
19 was provided by the Levy Konigsberg firm, right?

20 A. Yes, correct.

21 MR. ROGERS: Corey, am I saying that
22 right? Is it Levy Konigsberg?

23 MR. STERN: Sure. You say tomato; I say
24 tomato.

1 MR. ROGERS: Well, I just -- it just
2 occurred to me, you know --

3 MR. STERN: Konigsberg is how I say it.
4 Some people say Konigsberg, but I say --

5 MR. ROGERS: It just occurred to me, the
6 Levy connection. There's no connection, is there,
7 with the judge?

8 MR. STERN: I mean, none that I'm
9 willing to talk about right now.

10 No, there's no connection.

11 BY MR. ROGERS:

12 Q. Okay. On Page 55, you go on to describe
13 some information about APPI [REDACTED] drinking -- or
14 water consumption, three or four glasses of water
15 per day, not counting school. And you describe
16 her potential exposure here from drinking water at
17 school, et cetera. Okay. I think that's pretty
18 self-explanatory.

19 Let's move on to, in your report, the
20 information about the MDEQ tests on the faucets at
21 the school.

22 Just curious, when you -- on Page 56,
23 when you're referring to blood lead measurements
24 amount, you refer to it as tissue blood lead

1 levels. Why do you refer to it as tissue versus
2 blood?

3 A. Because I started out with blood and
4 then I got the bone and I figured I better broaden
5 it to tissue, because both are tissues but only
6 one of them is blood.

7 Q. I see. So you just changed the
8 terminology to include tissue as being the -- you
9 reported the blood lead levels and the bone, I
10 see. All right.

11 A. Yes. In the same section, yes.

12 Q. Yes.

13 Okay. I want to direct your attention
14 up here to something I missed. The section here,
15 "Bottled Water."

16 "The transcript of the deposition of
17 A PPI [REDACTED] mother indicates that the family had a
18 long-standing practice of using bottled water for
19 specific purposes, most notably to mix baby
20 formula, even predating the Flint water crisis.
21 They only gradually began to substitute bottled
22 water for tap water, subject to price and
23 availability, sometime after the water crisis came
24 to their awareness."

1 No specific date was evident. The
2 bottled was used for drinking and cooking, for
3 example, cooking pasta. I'm not really sure what
4 that means in terms of timing.

5 Are you saying here that the bottled
6 water was used for drinking and for cooking, for
7 example, cooking pasta, even before the switchover
8 to the Flint River water, in this family?

9 A. I think it's clear that it was a gradual
10 process and that that gradual process included
11 drinking and cooking.

12 Q. Before the water crisis?

13 A. That there was a gradual process of
14 substituting bottled water for tap bottled.

15 Q. Even before the switchover?

16 A. No. They started using some bottled
17 water for specific purposes, such as mixing baby
18 food, before the water crisis, but then they
19 gradually started to expand the use of bottles for
20 other purposes such as cooking and drinking.

21 Q. We'll have to look at the transcript for
22 that. All right.

23 A. I do want you to appreciate that if I
24 had an IEUBK model, it would be very difficult to

1 fill in the parameters that are demanded in that
2 model. I have tried painstakingly to come up with
3 fair statements regarding these issues, and I
4 believe that I have succeeded in this regard.

5 Q. If -- why is it that for each of the
6 plaintiffs, you are describing information about
7 their health issues if you are not opining on
8 specific causation, that is to say, whether any of
9 the individual plaintiffs' health issues were
10 caused by lead exposure?

11 A. Yeah. That was one of the initial
12 questions that I posed to the attorneys about the
13 scope of the report. The kids -- the kids' health
14 issues are critical for general causation, because
15 if you don't know what the health issues are, you
16 don't know what you're evaluating the causation
17 of. You have to know this.

18 And so this is a definition of what
19 those are.

20 In addition to that, through discussion,
21 we also understood -- and this is why I quoted
22 the -- I cited the complaint and the procedure --
23 that there could be other plaintiffs brought into
24 the process, and, therefore, the scope had to be

1 broader than just the health issues that were
2 represented among the bellwether plaintiffs. And
3 so that -- that is how I proceeded with the scope
4 of my work.

5 Q. I see.

6 So you're saying for purposes of the
7 evaluation that you did for general causation
8 purposes, you wanted to know whether there were
9 any health effects that potentially could be part
10 of the general causation evaluation due to lead
11 exposure, because if there weren't any health
12 effects at all that were noticed, it wouldn't even
13 be worthwhile doing the general causation
14 analysis; is that what you're saying?

15 A. That's right.

16 MR. LANCIOTTI: Object to form.

17 Q. All right. So I got another one right.
18 I actually --

19 A. You got a lot of them right. Come on.
20 No, you're doing good.

21 Q. So you're saying that these summaries
22 here of the health effects that were reported
23 potentially could be attributed from a specific
24 causation point of view to lead exposure based on,

1 you know, the opinions of the physicians about
2 that subject, right?

3 A. Exactly, yes. That's right.

4 Q. Okay. Let's move on to the next
5 plaintiff here, RPPPI VPPPI. I had asked
6 you questions about when the VPPPI family
7 first arrived in Flint, and you said you thought
8 you had reported it, and here it is.

9 So according to the information you
10 have, it's that RPPPI VPPPI was born in
11 Florida and moved to Flint in September of 2014,
12 right?

13 A. Correct.

14 Q. So clearly by definition, right, that
15 would affect the exposure period of time for
16 RPPPI VPPPI It wouldn't start until
17 sometime in September of 2014 when the family
18 moved to Flint by definition, right?

19 A. That's correct, yes.

20 MR. STERN: Dave?

21 MR. ROGERS: Yeah.

22 MR. STERN: This is Corey Stern. I just
23 want to interject for a moment.

24 Earlier in the deposition, I took some

1 notes that I was going to go back and clarify with
2 him tomorrow. But since you just raised the issue
3 of Mr. V PPI [REDACTED] residence, earlier in the
4 deposition you had asked a series of questions and
5 indicated that V PPI [REDACTED] did not move to Flint
6 until September of 2015. That's what you -- you
7 asked a series of questions of Dr. Michaels with
8 that date in mind. I went back and looked during
9 the break and found what you just found.

10 So just for the record, I just want to
11 clarify that any questions that had previously
12 been asked when the date of residence began in
13 2015, Mr. Michaels' report and the questions that
14 were asked should have indicated it was 2014, not
15 2015.

16 MR. ROGERS: Yeah. If the transcript
17 reflects that, that would have been a misstatement
18 on my part as to the year. I certainly did not
19 mean to confuse the issue or state something that
20 was inaccurate. But I guess the transcript will
21 remain what it is.

22 BY MR. ROGERS:

23 Q. But the fact is, right, Dr. Michaels,
24 that according to the deposition that you

1 reviewed -- and I believe that is accurate -- that
2 the VPP [REDACTED] moved to Flint in September 2014,
3 not '15, right?

4 A. Correct.

5 Q. So the way that this affects the
6 exposure period is that it could not -- their
7 exposure obviously to lead in the water in their
8 house could not have started until the time that
9 they arrived in Flint, obviously?

10 A. Yes, that's correct. And if you look at
11 Page 58 on the bottom, you can see that there is
12 396 days, or 1.08 years, assuming
13 mid-September 2014.

14 Q. Right.

15 A. So, again, I can only emphasize the
16 attempts I've made to be objective about these --
17 complete and objective about these issues.

18 Q. Okay. And then the paragraph that's
19 highlighted here, the section in terms of water
20 usage, it begins, "Ms. VPP [REDACTED] indicated that,
21 to the best of her knowledge, no water testing was
22 done at the Woodrow Avenue house."

23 And as far as you know, you haven't seen
24 any water lead level test for that residence,

1 right?

2 A. If I didn't report it, I didn't see it.

3 Q. Then you report here, "Indeed, she said
4 she heard nothing about the Flint water crisis
5 until," quote, "'maybe three or four months,'" end
6 quote, "after moving to Flint in September 2014.
7 Given this timing, the family would have consumed
8 untreated tap water until close to the end of 2014
9 and also used untreated tap water for other
10 purposes, such as cooking, bathing/showering, and
11 washing clothes. This changed around the end of
12 2014."

13 What do you mean by that?

14 A. Well, I guess they got aware of the
15 problem and they took steps to mitigate their
16 exposure.

17 Q. So the information that you have for the
18 vPPI [REDACTED] is that they stopped drinking the tap
19 water by the end of 2014, right?

20 A. I don't know. Could you find that for
21 me? I don't recall.

22 Yeah, I don't see that specifically,
23 but -- you're moving around, so I don't know.

24 Q. Yeah. I don't know that it's in your

1 report. I guess we'd have to look at the
2 transcript.

3 But the statement that you made here is
4 by saying "This changed around the end of 2014,"
5 it's your understanding that they -- the
6 VPP family stopped drinking the tap water
7 as of the end of 2014 when they became aware of
8 the issue, right?

9 A. No, that is not correct at all. The
10 above sentence says right there that she had heard
11 nothing about the water crisis until maybe three
12 or four months after moving to Flint, and,
13 therefore, she heard about it around the end of
14 2014, at which time, I assume that she must have
15 done something about it. But I don't have
16 information that she stopped drinking the water or
17 anything else. If it's not reported there, I
18 don't have that information.

19 Q. Well, what did you mean by "This changed
20 around the end of 2014"?

21 A. That she became aware of it.

22 Q. Oh. All right. Well, we'll find --
23 I'll see if I can find tonight an exact reference
24 to this and show it to you by tomorrow.

1 MR. ROGERS: Chris Fletcher, are you
2 still on?

3 MR. FLETCHER: Yeah, I'm here.

4 MR. ROGERS: Okay. So would you just
5 make a note of that and when we talk later, let's
6 get the exact testimony from Ms. V PPI on
7 that subject so we can clarify that. Okay?

8 BY MR. ROGERS:

9 Q. Okay. So here's an important one for
10 water exposure issues, the school water supply.
11 This is now on Page 60 of the report concerning
12 R PPI Va PPI.

13 It says "R PPI has attended Weston
14 Elementary School in Burton, Michigan from 2018 to
15 the present. No other school or preschool
16 experiences are reported. R PPI exposure to
17 lead in the City of Flint municipal water supply
18 does not extend to exposure via school."

19 That's because she's so young, right?
20 That she didn't start going to school until after
21 the whole thing was over, right?

22 A. Right. She started school in 2018, it
23 looks like.

24 Q. Right.

1 So by definition, from April 2014 to
2 October 16, 2015, she could not have had any
3 exposure to any lead in the water via school
4 because she didn't go to school then. She was too
5 young, right?

6 A. That's correct. Except to the extent --
7 and I just have to be formal about this -- kids do
8 visit schools sometimes, and to that extent, it's
9 possible. But I think by and large, that is the
10 correct conclusion.

11 MR. FLETCHER: Dave, if you want, I can
12 pull up that -- those depo excerpts if you want it
13 now.

14 MR. ROGERS: Let's wait, Chris. Let's
15 wait. I just want to see them. We'll do that
16 later, but thanks.

17 BY MR. ROGERS:

18 Q. In terms of bottled water here, the next
19 category, you say "At her deposition,
20 Mrs. V PPI [REDACTED] was asked about typical meals in
21 2015. She indicated that much of R PPI [REDACTED] liquid
22 intake was derived from milk or pre-mixed juice
23 purchased from a store." Right?

24 A. Correct.

1 Q. And she also indicated that R[REDACTED] drank
2 water, and that she's saying here, "I don't know
3 when we started with the bottled water," at least
4 in that reference to the deposition, right?

5 A. Correct.

6 Q. She says here about filtered water,
7 according to Ms. V[REDACTED] deposition, "The
8 family was given a faucet filter, which was
9 installed in the kitchen at some point during
10 2014."

11 Do you know whether or not -- or what
12 type of filter that was and whether it was a
13 filter that would filter out the lead?

14 A. Well, I don't have the answer to that
15 except that I certainly make the inference or the
16 assumption that they wouldn't have given her that
17 filter if they couldn't filter out the lead for at
18 least some period of time.

19 Q. Yeah, you would think --

20 A. Of course, the filter doesn't work
21 forever, but it does probably start off doing
22 that.

23 Q. Yeah, so the filters in the faucet
24 filter have to be replaced periodically to do

1 their job, basically, right?

2 A. Yes.

3 Q. So she's saying here -- reported that
4 the filter remained on the kitchen sink for about
5 a year. Eventually she removed the filter as the
6 family was not using tap water from the kitchen
7 faucet.

8 Does that mean, then, that if the faucet
9 was in place for about a year from some point in
10 2014 through 2000 -- some other point in 2015, the
11 water that they would use for cooking would have
12 been filtered water during that period of time?

13 A. Well, that depends on how long you think
14 that filter might have lasted. I would assume it
15 didn't last that long.

16 Q. So with respect to the blood lead
17 levels, the two that you report here anyway, in
18 November 2014, there was a measurement of less
19 than 3.3, so that, you know, given what we talked
20 about earlier, we know what that means. And then
21 there's a .7 micrograms per deciliter on
22 September 2nd, 2015.

23 So the measurement of .7 is actually
24 below the average that you were aware of that you

1 referred to earlier as being 1, right?

2 A. Correct, yes.

3 Q. Okay. So the reference values here to
4 the bone lead, we've already been over that. Your
5 answers to my questions about the reference ranges
6 for bone lead is the same for all plaintiffs, not
7 just any of these individual ones, right?

8 A. Yes.

9 Q. Same thing with respect to vPPI [REDACTED].
10 To the extent that you're reporting some type of
11 health issues in this section of your report, you
12 did that because it relates to, in your view, some
13 form of the general causation issue that you
14 addressed, right?

15 A. Absolutely, yes.

16 Q. Okay. I have a bunch of questions on
17 the next section related to D [REDACTED] wPPI [REDACTED]. And
18 what I would suggest, if you guys don't mind --
19 and then I have a lot more questions left at the
20 end of the report concerning the discussion and
21 the final conclusions, and then we've got to go
22 over some other literature and stuff tomorrow.

23 MR. ROGERS: But would you mind -- why
24 don't I just finish up this next section. It will

1 probably take another half hour or so, and then
2 would you guys mind breaking for the day at 4:00,
3 and then we'll pick up at 8:30 tomorrow? How does
4 that sound?

5 MR. STERN: This is Corey. I'm fine
6 with that.

7 MR. ROGERS: Okay. Thank you.

8 BY MR. ROGERS:

9 Q. Honestly, Doctor, I'm kind of running
10 out of gas myself tonight here, so that would be a
11 good idea, I think, if you don't mind, and we'll
12 definitely finish tomorrow. So let's get through
13 this next section --

14 MR. STERN: When you're consistently a
15 Ferrari and you've always got your foot on the
16 gas, sometimes you've got to stop for a refill.
17 And that's Dave Rogers in a nutshell.

18 MR. ROGERS: Well, you know, I'd like to
19 say I understood what that was, but I didn't hear
20 the first part of it.

21 What -- when you've always got your foot
22 on the gas, you said?

23 MR. STERN: I said when you're a
24 Ferrari, like Dave Rogers is. It was a

1 compliment. It was a gigantic compliment.

2 MR. ROGERS: I actually drive a Toyota
3 Tacoma pickup truck that I switched to a couple
4 years ago, so I'm a pickup truck kind of guy. But
5 I do have to say I keep the pedal to the metal
6 quite a bit on that truck.

7 MR. STERN: Dave, I am not joking with
8 you -- and I know we're on the record -- but I in
9 my life have had six Toyota Tacomas.

10 MR. ROGERS: Wow. That's great. I had
11 SUVs before, but I do like the Tacoma.

12 MR. STERN: I switched to the SUV most
13 recently from the Tacoma, but that's because the
14 kids who play baseball and not because -- yeah.

15 MR. ROGERS: I've got to ask you, then.
16 With your Tacomas, did you get the extended bed,
17 the 6-foot bed, or were you wimpy and get the
18 5-footer?

19 MR. STERN: I had -- my most recent one
20 was a 6-foot bed, and it was a TRD Sport, V6,
21 extended cab, four doors.

22 MR. ROGERS: Yep.

23 MR. STERN: I loved it.

24 MR. ROGERS: The passenger --

1 MR. STERN: Anyway, we digress.

2 MR. ROGERS: The passenger space in the
3 Toyota Tacoma four-door extended cab that I
4 have -- it's a 2016 -- is comparable to the three
5 SUVs that I had before. So it's --

6 MR. STERN: It is. It's identical to
7 the 4Runner, I think, in terms of space, other
8 than the trunk.

9 MR. ROGERS: Okay. Let's move on and
10 we'll finish up for the day.

11 BY MR. ROGERS:

12 Q. So now we're on to D[PPI] W[PPI] some
13 information about residential water supply and
14 other things.

15 Okay. In terms of water supply for
16 D[PPI] W[PPI], on the second paragraph on Page 63,
17 you clearly state about her testimony from the
18 mom, Ms. Martin, she "indicates that the family,
19 in the late spring or early summer of 2014,
20 stopped drinking their tap water at the advice of
21 one of the children's pediatricians," right?

22 A. Right.

23 Q. And also, "Around midsummer of 2014, the
24 family also stopped using the tap water for

1 cooking," right?

2 A. Correct.

3 Q. "They continued using the water for
4 bathing but, in maybe summer of 2014, switched to
5 bathing the children using bottled water," right?

6 A. Correct.

7 Q. However, the children occasionally
8 bathed using tap water even after the summer,
9 right?

10 A. Correct.

11 Q. So in terms of leaving aside school, the
12 exposure of D[PPI] W[PPI] to lead in the water for
13 the most part would have stopped as of --
14 completely stopped as of the summer of 2014,
15 right?

16 A. Yes.

17 MR. LANCIOTTI: Object to form.

18 Q. I'm sorry?

19 A. For the most part stopped, yes. Not
20 completely stopped, but for the most part stopped,
21 yeah.

22 Q. Okay. What other sources potentially
23 would there be from the tap water -- or from the
24 water from the home that didn't stop? Bathing

1 sometimes?

2 A. Around that time, they stopped for
3 cooking. They continued using it for bathing for
4 a while. And then I guess brushing your teeth
5 and -- I don't know what else they used it for.

6 Q. About the service lines, Ms. Martin's
7 deposition transcript notes that inspection of the
8 private and public portions of the service line to
9 the home at Burlington Road reveals copper
10 composition, not lead, correct?

11 A. Correct.

12 Q. Oh, I see. I've got to make sure that's
13 the right house. Hold on.

14 So, yeah, she moved there later. That
15 was the Burlington Drive in Flint. Moved there
16 later.

17 Do you know whether she reported if
18 there were any inspections of the service lines at
19 the Rollingwood Apartments at 5108 East Boulevard
20 Drive?

21 A. Well, if it's not reported here, I don't
22 know.

23 Q. Again, just like the other ones, you
24 didn't --

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1 MR. ROGERS: Okay. I think Corey might
2 have muted. I think one of his children was
3 asking him some questions there.

4 Q. So same as the other plaintiffs that we
5 talked about earlier, Dr. Michaels. You did not
6 do an independent -- or you don't have any
7 information about whether or not the service lines
8 for the residences at East Boulevard Drive or the
9 Rolling- -- sorry -- I'm sorry. Let me get this
10 straight. Give me a minute. Sorry. So I've got
11 it now.

12 You don't know what the composition of
13 the service lines were at either the
14 5108 East Boulevard Drive home in Flint, Michigan
15 or the 3375 West Sherman Avenue home in Michigan
16 were, do you?

17 A. If it's not there, I don't know, no.

18 Now, you can see -- if you scroll back
19 up for one.

20 I mentioned to you that I did look
21 myself at one of the houses at least. Here the
22 map source is a Google source. It is not the law
23 firm.

24 Q. All right. I see the asterisk there.

1 So this is the one that you were telling me about,
2 right.

3 So for W[PPI], you did your own
4 evaluation -- research?

5 A. My search. I looked it up myself, yes.

6 Q. Okay. So in terms of the school
7 exposure for drinking water for D[PPI] W[PPI],
8 there's no data relating to the McMonagle
9 Elementary School, right?

10 A. Correct, yeah.

11 Q. And there is some data for the
12 Doyle-Ryder Elementary School. Okay.

13 MR. ROGERS: Well, I think that's it.
14 That looks like all the questions, because the
15 rest of these things, you know, we've either
16 covered for the other plaintiffs or they're
17 self-explanatory, so I think that's good. We
18 could stop for today if that works for everybody.
19 We'll pick up at 8:30 tomorrow.

20 And I can pretty much guarantee that
21 we'll be done before lunch, and that will work out
22 well.

23 THE WITNESS: Are we looking at the same
24 URL link for the meeting?

1 VIDEOGRAPHER: The time is 3:44 p.m.,
2 and we're off the record.

3 (Signature not waived.)

4 - - -

5 Thereupon, the deposition was adjourned
6 at 3:44 p.m.

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I, ROBERT MICHAELS, PH.D., do hereby
certify that I have read the foregoing transcript
of my deposition given on November 12, 2020; that
together with the correction page attached hereto
noting changes to form or substance, if any, it is
true and correct.

ROBERT MICHAELS, PH.D.

I do hereby certify that the foregoing
transcript of the deposition of ROBERT MICHAELS,
PH.D. was submitted to the witness for reading and
signing; that after he had stated to the
undersigned Notary Public that he had read and
examined his deposition, he signed the same in my
presence on this ____ day of _____, 2020.

NOTARY PUBLIC

My commission expires: _____

- - -

Highly Confidential Robert Michaels, PH.D.

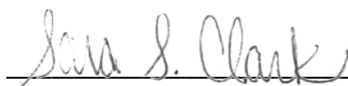
CERTIFICATE

I, Sara S. Clark, Registered Merit Reporter, Certified Realtime Reporter, Certified Realtime Captioner, a Notary Public, duly commissioned and qualified, do hereby certify that the within-named ROBERT MICHAELS, PH.D. was duly remotely sworn to testify to the truth, the whole truth, and nothing but the truth.

I DO FURTHER CERTIFY that the foregoing is a verbatim transcript of the testimony as taken stenographically by me at the time, place, and on the date hereinbefore set forth, to the best of my ability.

I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney nor counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in the action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal on this 3rd day of December, 2020.



Sara S. Clark, RPR/RMR/CRR/CRC
Notary Public
Registered Merit Reporter
Certified Realtime Reporter
Certified Realtime Captioner

My commission expires: March 10, 2023